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# An Occurrence of Nitrogen in Steel

## Effect of Gases on a Light Forging Left Accidentally in a Furnace Flue — Critical Analysis of the Resulting Structures

BY A. A. BLUE*

THE presence and effects of nitrogen in steel have recently received considerable study, especially as applied to arc welding, case hardening and the erosion of guns. The present instance is described, therefore, not as being of any practical value in itself but as a possible addition and confirmation to results already obtained in other cases.

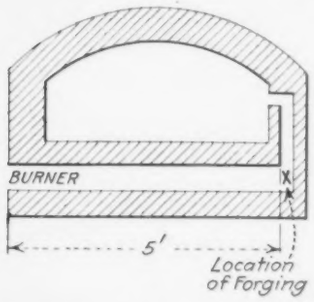


Fig. 1 (Left)—The Type of Furnace and the Location of the Forging

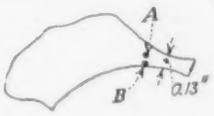


Fig. 2 (Above) Actual Size and Dimensions of the Piece Examined

A drop forged connecting rod of light weight design and made of steel conforming to the composition No. 1035, of the specifications of the Society of Automotive Engineers, was lodged in the flue of an underfired heat treating furnace, due to carelessness on the part of one of the helpers in charging the furnace. The type of furnace and relative location of forgings and burner are shown in Fig. 1. Some two months later, the highly oxidized remains of the forging were found and removed while repairing the furnace. During this time, the temperature in the furnace proper had at no time exceeded 1600 deg. Fahr. and generally was used for tempering heats, at from 1100 to 1200 deg. Fahr. The temperature in the flue probably did not exceed 1700 to 1800 deg. Fahr. The fuel used in the burners was natural gas and air was furnished by a low pressure blower system.

The portion of the forging that still remained solid steel was cut in half, longitudinally, the actual size and dimensions being shown in Fig. 2. The dimensions of the forging in the plane at right angles to that of the section shown, were approximately double those of the section.

Microscopic examination of the piece revealed the needle structure shown in Fig. 3, generally accepted to be typical of iron nitride. Similar structures have been stdied by Miller[1], Comstock[2], Rawdon[3], Knight, Northrup[4] and others, additional discussions and further references in connection with these articles furnishing additional information on the subject.

As might be expected, the needles were in greatest abundance in the narrowest part of the section, the number diminishing rather rapidly towards the heavy end. Thus, Fig. 3 is of the center of the thinnest section and Fig. 4 is from the center of the tapered por-

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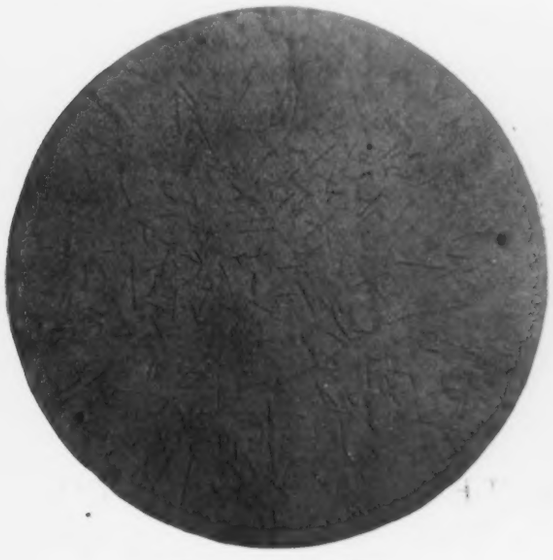


Fig. 3. 200 diameters

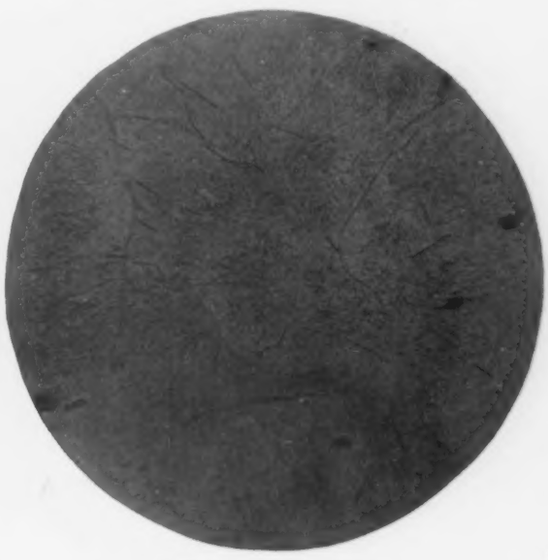


Fig. 4. 200 diameters

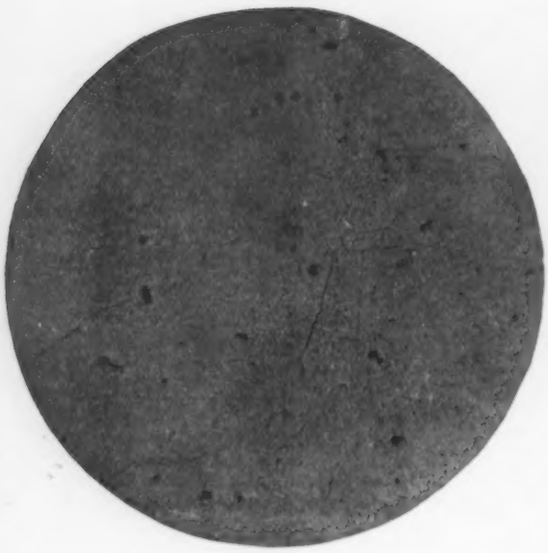


Fig. 5. 200 diameters

Fig. 6. 500 diameters

Fig. 7. 200 diameters

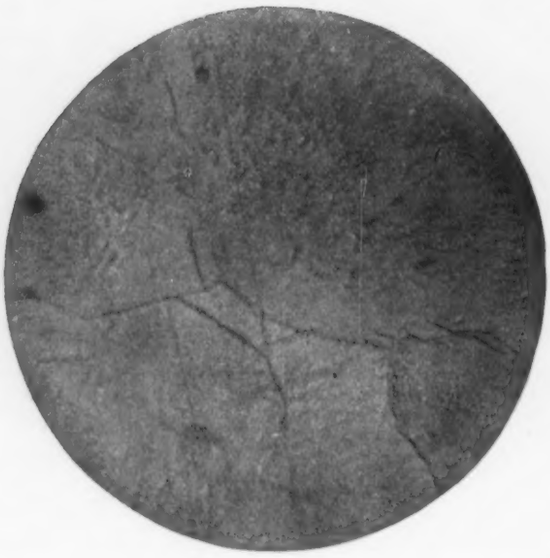


Fig. 8. 500 diameters

tion of the specimen, at A in Fig. 2. The reduction in the number of needles is very marked. In the heavy section, no needles at all were found. On the other hand, there appeared to be a tendency toward a greater concentration in the central portions of the section rather than at the edges; thus, Fig. 5 is taken at the edge of the tapered section, designated by B in Fig. 2, and shows much less nitride than Fig. 4, from the center of the same locality.

At first glance, it would appear that the needles are indiscriminate as to direction, but closer examination shows them to follow fairly consistent directions at well defined angles to each other in the same grain. This has been noted by Rawdon[3] also. Often twinning occurs, resulting in star shaped formations, as seen in Figs. 3 and 6. Occasionally, very marked parallel formations were found, as shown in Fig. 7. In a few rare instances, needles were found to pass from one grain into another, seen in Fig. 8, and as found by Rawdon[3] and others. Generally, however, what appeared to be cases of this nature were found upon closer examination to be two individual needles starting at the same point on the grain boundary.

Quite often needles originated at the same point on a grain boundary, extending into their respective grains at different angles. This is seen in Fig. 9 at a number of places. The needles do not always occur as continuous straight lines, being occasionally found in a zig-

Fig. 9. 200 diameters

Fig. 10. 200 diameters

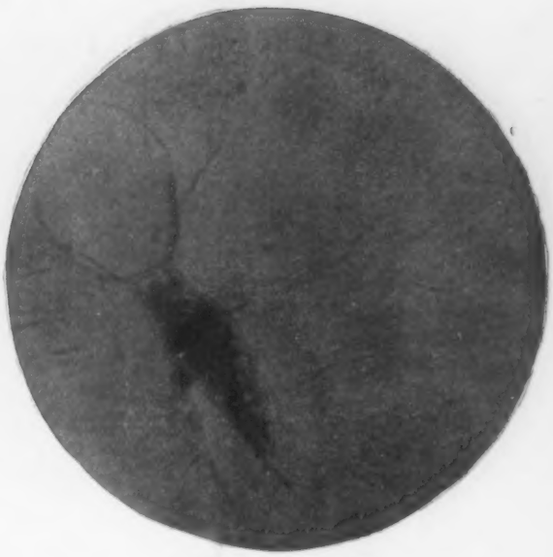


Fig. 12. 500 diameters

zag formation. Instances of this kind are shown in Figs. 3 and 6. This phenomenon is noticeable also in a number of photographs previously published. The appearance may be described as "side-stepping," that is, the needle appears to follow one cleavage plane for a distance, then turning into a crossing plane for a short distance, and turning again following the first direction but in a plane parallel to the original one.

Rawdon[a] and Miller[7b] report groups of fine small needles, which were found frequently in the present instance, in greater abundance where the larger needles were not so prevalent, as shown in Figs. 7, 8, 9, 10 and 13. It was found to be characteristic that large and small needles did not exist in close contact. Thus, reference to these photographs shows that where a large needle occurs in a field of small ones, the large one is always surrounded by a small area of clear metal. This appears to indicate a considerable tendency on the part of the nitride to form in larger masses. Thus, where conditions permit—probably a question of temperature—this tendency is great enough to cause so rapid a formation of a large plate as to leave the surrounding areas impoverished of this material.

Very frequently, the needles are found originating at the grain boundaries and it seems possible that those appearing in the central portions of the grains are, in reality, simply cross sections of needles, or really plates, which have grown up or down from grain

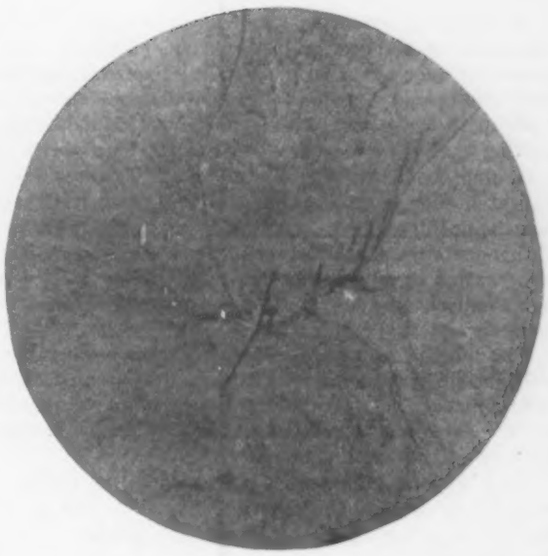


Fig. 13. 500 diameters

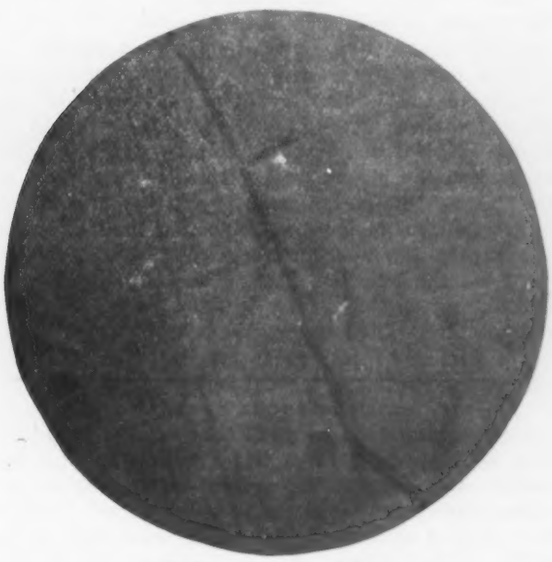


Fig. 11. 900 diameters

Fig. 14. 200 diameters

Fig. 15. 200 diameters

boundaries below the polished surface or from boundaries above the surface, and which have been removed in preparation of the sample, that is, that all needles originate at grain boundaries.

In many instances what appear to be distinct openings between the grains were found. Figs. 4 and 5 show such openings clearly. It will be noted these double lined openings extend a short distance and then close up to the normal single line grain boundary, indicating that their occurrence is not due to a polishing or etching condition. Fig. 11 shows one of these openings at higher magnification, and here, too, it is seen that the opening closes to a single line in the lower end of the photograph. These conditions seem to indicate a separation of the grains due to their long period at high temperatures, forming an avenue of entrance for nitrogen and oxygen.

The mechanism of the decarbonization is illustrated in Fig. 12 showing an area of pearlite only partially decarbonized, the outer portion, i.e., along the grain boundaries, being attacked first. Fig. 13 shows another instance of the same character.

This expansion between the grains no doubt is extended as well to the cleavage planes in the grains themselves, allowing the entrance and combination of the nitrogen.

The effects of heat treatment were studied in the following manner. The second half of the original specimen was heated in an electric muffle furnace to

Fig. 17. 200 diameters

1780 deg. Fahr. held for half an hour and quenched in water. The resulting structure is shown in Fig. 14, taken of the thinnest section where the needles or plates were most prevalent previously. It is seen that they have entirely disappeared. This agrees with results obtained by Ruder, Rawdon and others. The sample was then reheated to 1200 deg. and allowed to cool slowly over night in the furnace. The resulting structure showed a reappearance of traces of nitride. Reheating again to 1780 deg. for half an hour, and cooling in the furnace resulted in the reappearance of additional nitride as in Fig. 15.

The sample was finally reheated to 1780 deg., held at this temperature for 24 hr. and cooled in the furnace. These various reheatings considerably reduced the size of the narrow section, the final dimensions being shown in Fig. 16. Examination of the sample after this final prolonged treatment showed results that were quite surprising. The narrow portion, where in all previous cases the concentration of the needles had been greatest, was found to contain practically no needles at all. Moving toward the heavier sections, at the location A, Fig. 16, a fairly great number of needles was found, as in Fig. 17. The thickness of the sample at this point is seen to be approximately the same as the thinnest portion in the original sample, indicating what might be termed a "critical thickness." Closer examination of the thinner sections revealed a number of areas at first taken for pearlite as shown in Figs. 18, 19 and 20. This section, previous to the last reheating, however, contained completely decarbonized ferrite, no pearlite being then present until well up in the thickened portions. These areas, therefore, were examined more closely and found to contain inter-

Fig. 16. Final Dimensions of the Narrow Section of the Original Forging After Various Retreatments

mixed in them a number of needles and presented other features not characteristic of pearlite; thus, several occurred at the edges of grain areas whereas it has been shown in an earlier paragraph pearlite decarbonizes inward from the grain boundary. The only explanation for them that appeared plausible was to assume them an eutectoid of nitride similar to pearlite, the nitride having coalesced due to the increased temperature.

The reasons for this eutectoid not being found in the original sample may be due to the "critical thickness" mentioned above. That is, with a thinner section, the partial pressure of the nitrogen becomes great enough to cause this formation. Temperature could hardly be the cause, as, judging from the grain size of the original and treated samples, the former was exposed to the higher temperature, as in Figs. 3 and 15, although the larger grain size in the original may have been due mainly to the longer time of heating at possibly lower average temperatures. Comstock[5] expresses the belief in such a eutectoid, stating the difficulty of distinguishing it from pearlite. In the present case, where no pearlite was found previously and a number of such areas prominent after heating, this contention would seem to be substantiated.

Various theories as to the nature of these needles or plates have been suggested, as cementite, martensite, etc., although the nitride explanation has been practically accepted. The present instance offers much in support of the latter, as in a completely decarbonized piece of steel, such as the thinnest section is found to be, the presence of cementite and martensite is, of

course, out of the question. In the combustion products to be found in the flue from the natural gas fuel, the only constituents of any quantity would be nitrogen, oxygen and carbon dioxide, making it evident the first named is responsible for the characteristic structure found.

As stated in an early paragraph, the present example of nitride in steel is in itself of no practical value, but it is felt the condition of the direct combination of ordinary inert atmospheric nitrogen with iron at moderate heating temperatures is quite unusual. Further, the specimen examined displayed excellent examples and confirmation of phenomena already found and described under entirely different conditions, as well as some not previously emphasized, so that it is hoped the present description may be of value in problems involving this interesting condition in more practical lines.

[1] S. W. Miller: (*a*) "Some Structures in Steel Fusion Welds," *Transactions* A. I. M. M. E., vol. 58, page 700, 1918. (*b*) "Path of Rupture in Steel Fusion Welds," *Transactions* A. I. M. M. E., vol. 62, page 524, 1920.

[2] G. F. Comstock: "Microstructure of Iron Deposited by Electric Arc Welding," *Transactions* A. I. M. M. E., vol. 62, page 555, 1920.

[3] H. S. Rawdon, "Metallography of Arc-fused Steel," *Chem. and Met. Eng.*, vol. 23, page 777, Oct. 20, 1920.

[4] O. A. Knight, "Some Notes on the Effect of Nitrogen in Steel," *Chem. and Met. Eng.*, vol. 23, page 1107, Dec. 8, 1920.

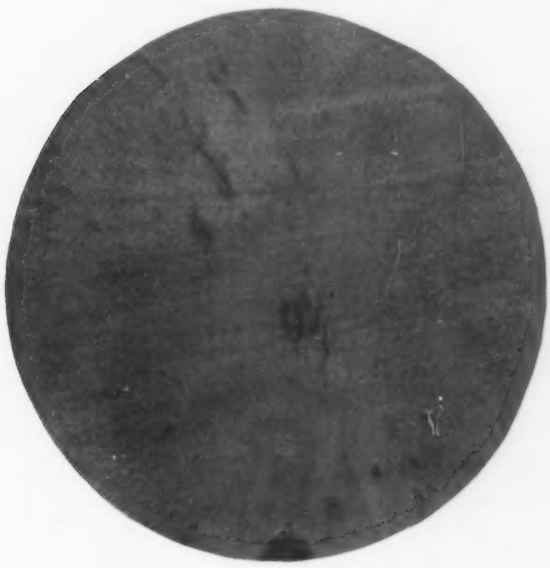


Fig. 18. 500 diameters

[5] G. F. Comstock, in a reply to discussion on paper on "Microstructure of Iron Deposited by Electric Arc," *Transactions* A. I. M. M. E., vol. 62, page 568, 1920.

## Works Council Stands Severe Tests

Ninety-five per cent of the American workmen are on the square, and if they are furnished the facts on which to base their conclusions, their group judgment will be eminently fair, asserted Arthur H. Young, International Harvester Co., in discussing before the American Drop Forge Association the company's experience with the works council plan. The scheme is now 27 months old in 19 out of 20 plants in which it was submitted to the men. The McCormick Works, Chicago, which first rejected the plan, recently accepted it by a vote of 10 to 1. The representatives of the employees and management in the councils have come to agreement on all questions except two during the life of the plan, and these were settled through the offices of the president of the company.

In providing that controversial points such as wages, hours, and working conditions are decided by the employee and management representatives, the council plan is unique. In case of disagreement, questions go to the president, and if he cannot propose a settlement that is satisfactory to both sides, they may mutually agree to arbitration. At the same time they can refuse to arbitrate, if they choose. If the issue affects other plants, the president has the privilege of calling a general council of representatives of all plant councils, which consider the question de novo.

Fig. 19. 500 diameters

The council plan has had several severe tests, said Mr. Young. In the summer of 1919, when a strike was called at the McCormick works, the plant which rejected the council scheme, the neighboring tractor works and the Deering plant were closed at the request of the men themselves, because of the lack of police protection against the intimidation of the McCormick strikers. Within a few weeks, both of these plants were reopened, at the direction of their councils, and practically all of the employees returned to work.

During the steel strike of the fall of 1919 the Wisconsin Steel Works was similarly closed, for like reasons. Within three weeks all but 180 men returned, when the council decided to reopen the plant, and since that time all but 12 of the original employees have come back to the plant. During the coal strike late in 1919, the Benham, Ky., coal mine of the company was at first closed, practically all of the miners being union men, but inasmuch as they had no reason for controversy with the management, they soon held a council meeting and voted 463 to 17 to return to work—this despite the fact that all employee members of the council were union men.

Recent 20 per cent wage decreases in most of the Harvester plants have been negotiated in the works councils.

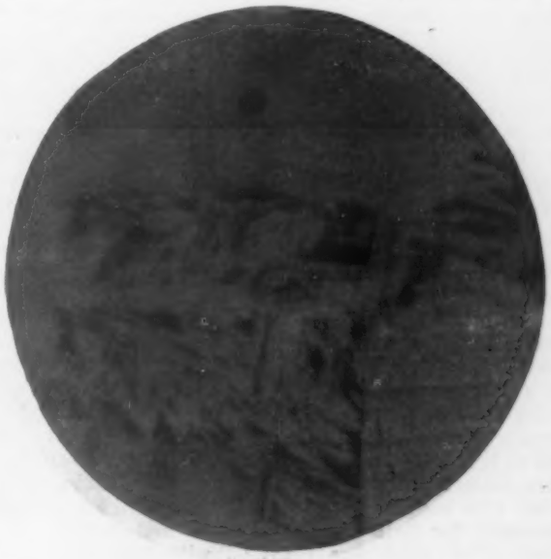


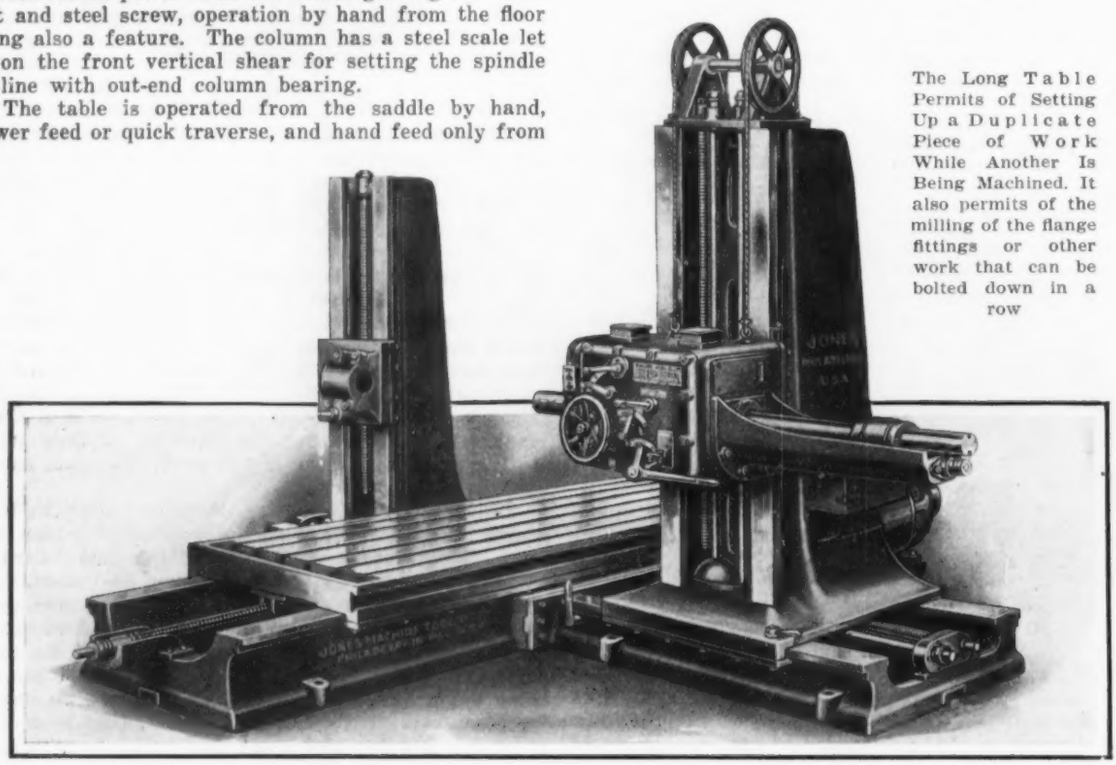
Fig. 20. 500 diameters

## Boring, Drilling and Milling Machine

A horizontal boring, drilling and milling machine of the planer table type, shown in the illustration, is being offered by the Jones Machine Tool Works, Philadelphia. The machine is known as the Nos. 4½ and 5 and is designed for the boring of cylinders, motor housings and other horizontal boring mill work. The drive is by a constant or variable speed motor located at the base, transmitting power to a vertical shaft through spur and miter gearing. From the vertical shaft the drive is through a set of heat-treated miter gears and sliding change speed gears to a bull gear and quill to the spindle.

The saddle is raised and lowered on the column by a revolving bronze nut on a steel screw, either by hand wheel, power feed or quick traverse. The main column can be traversed in either direction on its base from the saddle by hand or power feed or quick traverse. It receives its power from the saddle gearing to bronze nut and steel screw, operation by hand from the floor being also a feature. The column has a steel scale let in on the front vertical shear for setting the spindle in line with out-end column bearing.

The table is operated from the saddle by hand, power feed or quick traverse, and hand feed only from the floor. It derives its power from the saddle gearing to a revolving bronze nut and steel screw. The table top is provided with tie slots, and its face side provided with a dovetail slot for holding special index plates and fixtures. The out-end column support is hand-operated and the column has let in on the face of the shear a steel scale for aligning the bearing with the spindle. A saddle platform (not shown in the illustration) is furnished, which is slipped into position on the saddle when doing work which takes the operator from the floor, the central controls on the saddle giving the operator easy control of the machine from the platform. This is pointed out as a special feature in reducing production time.



The Long Table Permits of Setting Up a Duplicate Piece of Work While Another Is Being Machined. It also permits of the milling of the flange fittings or other work that can be bolted down in a row

Among other details of construction it may be mentioned that all sliding speed and feed gears, except the electric steel bull gear, are from 0.60 to 0.70 per cent carbon steel, heat treated, the gear shafts running in bronze bearings with sight feed lubrication. The bull gear, in addition to being carried by a steel quill, sets in a large conical bearing to take the thrust when using the face plate, milling cutters and facing attachments. The quill runs in large bronze bearings at each end of the saddle, and drives the spindle by two splined keys diametrically opposite, the front end being provided with cone bearing adjustment and the rear end arranged for ball bearing thrust and adjustment. Power feed gears are provided with friction safety device, quick traverse being also of the friction type, providing against breakages should the spindle, saddle column or table become jammed when at the end of their respective traverses.

### Nolan Patent Bill's Prospects Improve

WASHINGTON, July 5.—The Nolan patent bill has been given a privileged position on the House calendar, in order that it can be taken up for vote at an early date. The measure allows increases in a number of employees and in salaries at the Patent Office and has the support of prominent associations of producers throughout the country who have pointed out that industry will suffer severely unless relief as provided for in the bill is afforded.

Details of this bill, which failed to pass at the regular session of Congress, have been explained by THE IRON AGE. In brief, it carries an increase in salary amounting to $447,740 over the appropriation for the current fiscal year and makes many changes in grades of employees and increases the salary of the Commissioner of Patents from $5,000 to $6,000. Manufacturing interests are especially interested in that provision of the bill which allows the Patent Office to employ a larger number of more efficient examiners at material increases in salary.

### Coal Bill Fails to Pass

WASHINGTON, July 5.—Proposed legislation urged by Senator Frelinghuysen to establish seasonal rates on coal and to stabilize the coal industry is considered to have been defeated so far as this session is concerned, when the Senate last Wednesday voted 38 to 26 to recommit the former measure. Motion to recommit was made by Senator Borah, of Idaho, who said he could not vote for the bill as presented. Following this action of the Senate, Senator Frelinghuysen made no attempt to bring up his bill authorizing Government agencies to gather coal statistics.

The Interstate Commerce Commission has dismissed a complaint of Suzuki & Co. vs. the Wharton & Northern, et al, by holding that the combination rate of 63.88c. per 100 lb. on pig iron in carloads from Wharton, N. J., to Seattle, Washington, for export shipped in the period from August 1917, to February 1918, was not unreasonable, unjustly discriminatory or unduly prejudicial.

# Heat Treatment of Rock Drill Steel

## Effect on Breakage—Steel Giving Longest Service—Maximum and Minimum Life Expected — Comparison with Eye-Bars

AT the symposium on the breakage of drill steel which was held at the February meeting in New York of the American Institute of Mining and Metallurgical engineers, several papers were presented which were not printed by the institute. One of them was entitled "The Breakage and Heat Treatment of Rock Drill Steel," by A. E. Perkins, Western sales manager Colonial Steel Co., Pittsburgh. It was read by the vice-president of the company, Charles M. Brown. The paper was as follows:

First: Study of steels which give greatest service before failure by breakage.

*Nature of Section.*—Actual figures showing the superiority of one section or another are difficult to obtain, as I know of no company that has kept figures on this phase of the subject. However, I think I may state positively that in a given size of steel the cruciform section in that particular size shows far more breakage, the country over, than any other section.

Of course this section of steel is used almost exclusively in stopping machines drilling "up" holes which are more trying on steel than horizontal holes, but the cruciform section is, nevertheless, inherently a weak section. In the first place it contains less steel per foot than any other standard section of the same size and secondly conditions are encountered in its rolling which do not obtain in the other sections and which, in my opinion, make it weak. The other sections, namely, round, hexagon, octagon and quarter octagon, are compact, but when a cruciform bar is rolled the wings or ribs tend to cool off relative to the main body of the bar and we encounter the unavoidable condition, always undesirable, of rolling a bar made up of steel of unequal temperatures. This sets up cooling strains, which often give rise to minute cracks in the finished bar, which are the genesis of points of failure later when the steel is put into service.

Many companies have discarded the cruciform section entirely, substituting in its place quarter octagon steel, either hollow or solid, depending of course upon the machine and use and practically always with improved results. The chuck wear is always much less with quarter octagon than with cruciform and I look for the mining fraternity to practically abandon the cruciform section within the next few years.

*Composition.*—Too much importance cannot be attached to the quality of the drill steel. In general it may be said that the best steel to employ for a fixed set of conditions is the steel that will withstand the duty imposed upon it without undue breakage and that will withstand the abrasive action of the rock with the least amount of wear.

The chemical composition of drill steel is a matter that has been subjected to a great deal of experiment by the mining industry, the manufacturers of rock drills and the steel companies. It is an accepted fact that steel of a low carbon content will stand more abuse by the blacksmith and will lend itself more readily to welding than steel embodying a greater percentage of carbon.

In that connection I might recall a statement which I just made to Mr. Tillson, said Mr. Brown, taken from a paper read before the British Mining Engineers Institute in which the conclusion was reached that carbon content was about 0.60 per cent, but that was dependent upon the character of labor that they had to depend upon to make those drills; but that is so radically different from the results in this country and the results shown with the higher carbon steel as to be quite noticeable.

On the other hand, continues the paper, the consensus of opinion seems to be that the higher carbon steel will withstand the vibration shocks to which it is subjected in the hammer-drill service, and that the cutting bit, although requiring more care in the tempering and working, may be made to last much longer than is possible with lower carbon steel.

We believe that the following specifications are right for straight carbon drill steel under the average present day conditions:

| | Per Cent | | Per Cent |
|---|---|---|---|
| Carbon ..... | 0.85 to 0.90 | Phosphorus ..... | 0.03 |
| Manganese ..... | 0.30 to 0.40 | Sulphur ..... | 0.03 |

In buying drill steel, however, one must not rely too strongly on chemical analysis as an indication of quality, for the quality of a steel which has to be hardened and tempered depends far more upon the process of manufacture and the character of the workman than on the chemist. Tool steel of good quality was made long before chemists were heard of and it is safe to say that steel of equally good quality can be produced today in small quantities without the assistance of chemists in any step of the process. Steel makers' chemists in their laboratories are valuable in enabling the works to maintain a uniformly high quality in producing tool and drill steel in the large quantities which are demanded at the present time. It takes pure iron and experienced satisfied workmen to make good steel.

Second: Maximum and minimum service which might be expected.

*Life of Steel.*—I find that I have no intelligent figures to present to answer the question: How long will a piece of drill steel last? There are so many variables that any such figures are bound to be individual rather than general and of doubtful value at best. Any figures along the above lines, to be at all comparable, should be expressed in terms of drilling hours rather than in drilling footage or in pounds of steel per ton of rock broken. I have a number of figures of this last class from different sources, showing the pounds of steel used per ton of rock broken, which vary from 0.05 lb. per ton to 0.51 lb. per ton, but they have no place here as they admit of no uniform basis of comparison.

*Summary.*—We may summarize the points which make for maximum service from drill steel as follows:

Keep your heat down. Ninety-five per cent of the trouble which results underground is the result of overheating in forging or in tempering or both. Never heat either the bit end or the shank end, preparatory to forging, higher than 1600 deg. Fahr. This may mean a little more work on the part of the blacksmith, but the gain in quality of the finished drills will greatly offset the slightly additional expense in forging. Overheating a piece of steel preparatory to forging produces coarseness of structure which cannot be restored or refined by merely allowing it to cool and then subjecting it to a tempering operation.

To harden successfully, plenty of time must be given to the heating and always leave the steel in the furnace long enough to insure its being heated uniformly and thoroughly. This may be best accomplished in a slow fire and only by slow uniform heating is it possible to secure the required uniformity in hardness.

Steels lying too long in the fire, especially when not turned about, are liable to show soft spots in hardening, due to a slow decarbonization which takes place.

After hardening and tempering either bit or shank always quench at the critical temperature on the rising heat.

When tempering shanks, do not overlook the fact that density and toughness provide wear-resisting qualities, and that hardness, except on the extreme outer surface, is not essential or desirable. Subject the part for a distance of 2 in. below the lugs or collar to the heat treatment.

Either keep the heated tool moving about in the quenching bath or keep bath agitated, otherwise soft places may result, due to the steam which is formed around a heated steel upon being plunged into the water.

To get uniform results in hardening, a good supply of liquid should be provided so that the temperature of the bath will be kept as nearly as possible a constant.

Discourage the practice of operating with a dull bit and

remember that the only reason drill steel will drill rock is because of the cushioning effect of penetration at every blow delivered. The effect of continued hammering on a dull steel is exactly the same as it would be in driving up against an impenetrable substance, such as a hardened anvil. Minute fatigue checks are established throughout the length of the drill steel. At the beginning they may be so small as to be hardly detected with the naked eye but with continued operation one of these fatigue checks, which will develop at the weakest point, will gradually grow larger by assuming a semi-circular or arc-shape appearance extending into the body of the steel. As this check enlarges it is caused to open and shut at each vibration or blow of the hammer in the drill.

A breathing action is thus established which, when the gap opens, causes an inrush of the surrounding air, carrying in with it impurities part of which are retained by the surface when the mouth closes. It is these foreign particles sucked in with the air which give to the surface of the check a discolored appearance. The smooth surfaces of the check are due to the hammering action to which they are subjected by the closing of the jaws for every blow or vibration. Eventually the steel is broken apart with the balance of the section, disclosing a good, clear fracture of the metal in its original condition.

Watch your drill-sharpening machine for worn dies and dollies. Worn parts of a sharpener often cause poor bits to get out. These bits are often feathered badly, which means that a feather or tip of steel is left on one or more of the corners. These feathers, of course, break off as soon as they are put in the drill and cause a rapid loss of gauge.

Watch your air pressure at your sharpening machine. Most sharpeners should have at least eighty pounds at the machine and if the machine is running on less pressure and the smith tries to forge the bit at the proper temperature, it gets cold before he can get the corners on, so to get out his work he usually yields to the temptation of putting the steel through hotter than he should. If the pressure were high enough he could complete the forging of his bit at the proper temperature before it got too cold.

Keep the chuck bushing up to size and remember that the worn end of a check bushing will prevent the transmission of a square, direct blow. This same statement will apply to the size of the drill shank.

That is the conclusion of Mr. Perkins' paper. I have a note here that I would like to read, added Mr. Brown, bearing on Mr. Foley's statement in which he showed that by far the largest number of breaks happened at or near the point to which extended the heat treatment in forging either the shank or the bit.

Heat treatment of drills after the shanks and bits are forged would undoubtedly increase greatly the time and service before breaking occurs in the bar. The heat should not be carried so high as to put the drill in an annealed condition, but be just a low faint red hardly visible in a dark place, or about 900 deg. Fahr., and then allowed to cool off naturally in air. After this is done the bit should be hardened and tempered and the shank tempered.

The same treatment applied to the drill bar after it has been used for some time would relieve the strains which have been set up in the bar and prolong its actual life before breakage.

Similar experience was found years ago in the manufacture of eye-bars for bridge work. The eyes at the ends of these bars are formed by an upsetting process which involved heating one of the ends of the bars and great trouble was experienced in breaking at or close to the point which was reached by the heat. It was found that by placing the entire bar in the furnace and giving it a mild heat treatment similar to the one referred to that this breakage was eliminated and this is now common practice.

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# DRILL STEEL SHARPENING*

## Structure of the Carbon Steel in the Various Stages of Heat Treatment

BY CLARENCE M. HAIGHT

The general practice in drill sharpening shops, of which descriptions have been written, is about as follows:

The bit is heated to a forging heat of 1600 to 1900 deg. Fahr. for a distance back from the cutting edge necessarily greater than the length of the finished bit.

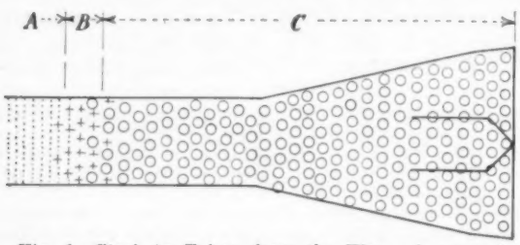



Fig. 1—Steel As Taken from the Fire. *A*, normal size; *B*, section of change from normal size to 1800 deg. Fahr. size; *C*, size at 1800 deg. Fahr., 4 in. long

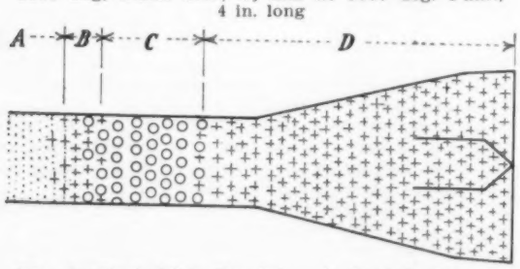



Fig. 2—Steel After Forging. *A*, *B* and *C* as in Fig. 1. *D*, size of grain at 1600 deg. Fahr., 3 in. long from hammering; this leaves *C* only 1 in. long with a section of change between *C* and *D*

After forging to the proper shape and size in the sharpening machine, the steel is allowed to cool and is then passed to a hardening furnace where the end only of the bit is heated to the critical temperature or a little higher, or to about 1450 deg. Fahr., and then quenched either in cold water or brine or, as in one case, in brine with a layer of oil on the top.

If the assumption is true that, as a steel cools whether slowly or rapidly from the highest heat to which it has been subjected, it retains the grain size that corresponds to that highest temperature; then there is a condition in the bit, and also in shanks if the same process is followed, that perhaps is detrimental for the best service from the steel.

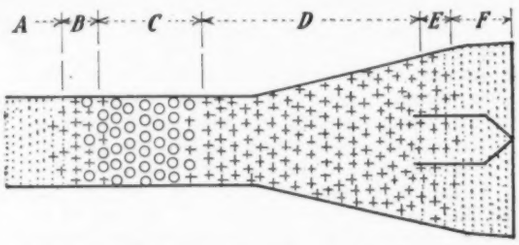



Fig. 3—Steel After Hardening. *A*, *B*, *C* and *D* as in Fig. 2. *E*, section of change from 1600 deg. Fahr. grain size to normal grain size; *F*, normal grain size in hardened portion; *D* has been reduced in length by *E* and *F*

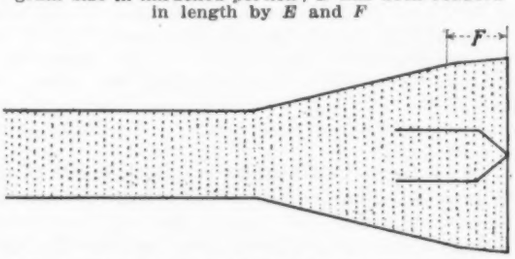



Fig. 4—Steel As It Is Desired to Be When Ready for Use

For the sake of clearness let the following assumptions be made:

That the forging temperature is 1800 deg. Fahr.
That the forging operation reduces the 1800 deg. grain

*From a paper read at the symposium on drill steel failures at the February meeting of the American Institute of Mining and Metallurgical Engineers in New York. The author is assistant mine captain, New Jersey Zinc Co., Franklin, N. J.

size to a size corresponding to that produced at 1600 deg.

That the proper grain size desired is that produced at 1450 deg.

That the bit is originally heated for 4 in. back from the cutting edge, that the hammering effect acts only to a point 3 in. back from the cutting edge, and that the hardening heat extends back only 1 in. from the cutting edge.

Then, as a steel is taken from the fire the grain condition is as shown in Fig. 1. After the forging operation has been performed a different condition exists as is shown by Fig. 2. The heating operation to harden the cutting edge produces still another effect as is shown in Fig. 3.

The questions that naturally arise from this are:

Will the cost of the extra heat treatment necessary to change this condition (annealing) be more than the saving that may be effected in the drill steel or will the extra heating be an economical as well as a wise thing to do?

Is this condition necessarily detrimental to the maximum service of the drill steel?

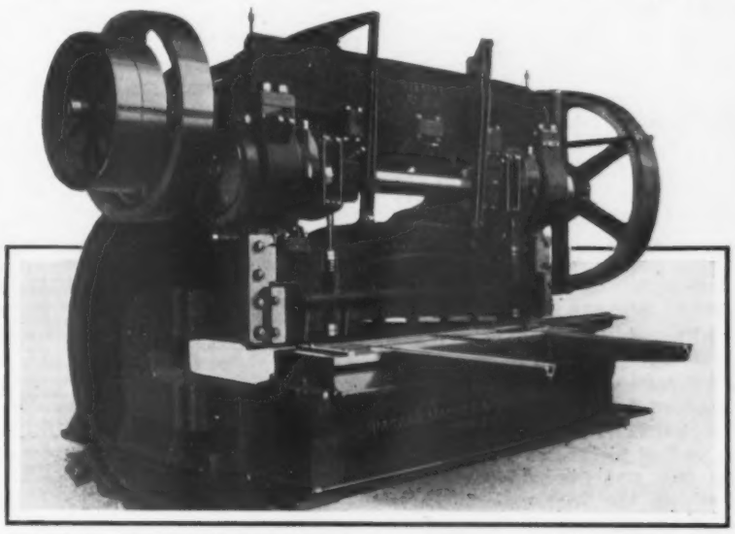
Can this annealing action be obtained in the hardening heat by heating more of the bit, say at least 5 in., to the hardening temperature but quenching only the end of the bit by a shallow immersion?

When taking up the question of heat treatment with the general run of mine blacksmiths it is difficult to get them to realize the part grain sizes play in the structure of the steel and the necessity for overcoming a wrong grain if obtained. Perhaps the presentation of the matter in this way may be of assistance.

## New Series of Power Squaring Shears

The Niagara Machine & Tool Works, Buffalo, N. Y., is placing on the market a No. 8-H power squaring shear, which is said to introduce a new series recently added to the line of power squaring shears manufactured by that company. In offering the new machines the makers state that they have been able to build a shear with a capacity of ⅝ to ¾ in., that will make a much cleaner cut than any of the ordinary mill type.

Introducing the new series, the No. 8-H power squaring shear is shown in the accompanying illustration. Among its features may be mentioned the heavy crosshead of box section, guided in liberally proportioned guides and counterbalanced. The main shaft and eccentrics are forged in one piece and the clutch block, made of hammered steel forging, is equipped with hardened and ground removable striking jaws, as well as with hardened back lash jaws. The clutch wheel, bronze bushed, is provided with hardened and ground removable striking faces and with a back lash pin. Cam and throwout rollers for clutch disengagement are both of hardened steel.



Mainshaft and Eccentrics Are Forged in One Piece. The clutch block is from a hammered steel forging and equipped with hardened and ground removable striking jaws

The two center bearings for the main shaft are placed close to the eccentrics and hold-down cams. The latter are of hammered steel and are arranged to give positive action, both in lifting and in holding down. The cams are liberally proportioned and bear against hardened steel rollers lubricated through hollow pins. The hold-down rods are equipped with springs to compensate for various thicknesses of plates.

The brakes are made in two halves, hinged and lined with asbestos, and have automatic spring takeups for wear. The knife chuck is provided with pockets to enable bolts to be easily removed from the top, and has T-slots on the top for gages and on the front for gage brackets. The knife chuck is also provided with a screw and set screw on each end to facilitate easy adjustment. Housings are massive and do not require stay rods for cutting the maximum capacity rating, stay rods and stay bolts being furnished to special order only. Counterbalance rods are regularly placed so as to pass outside of housings.

A complete set of gages is provided, including a front, side, bevel and slitting gage and a patented automatic screw adjusting back gage. The driving mechanism is overhead. The pressure of the cutter bar toward the back is taken up by solid metal rather than by loose gibs. Gears are machine cut and pinions of hammered steel with wide face.

The specifications give the following dimensions: Capacity, mild steel, ⅝ in.; nominal cutting length, 96 in.; weight, 54,000 lb. and 61,000 lb., 24 in. and 36 in. gap respectively; horsepower required, 30; and double geared ratio, 15 to 1. The flywheel is 62 x 9 in., and weighs 2300 lb, the pulleys being 36 x 9 in., and running at 240 r.p.m. The floor space occupied is given as 132 in., front to back; 197 in., right to left; the overall height being 123 in.

## Wage Agreement Expected

Representatives of the Western Sheet and Tin Plate Manufacturers' Association and the Amalgamated Association of Iron, Steel and Tin Workers met Tuesday at an adjourned conference in Columbus, Ohio, to attempt to negotiate a new wage agreement covering these branches of the industry.

James H. Nutt of Youngstown, secretary of the employers' association, stated: "The conference will probably last all week, but we look for an agreement. Nothing was said in the previous conference at Atlantic City which indicated that we might not get together.

Conferees are meeting at the New Southern hotel.

Upon expiration June 30 of the 1920-21 contract, sheet and tinplate mills operated by about 20 mid-Western makers under the Amalgamated Association's sliding scale, suspended and will not resume until a new contract is agreed upon.

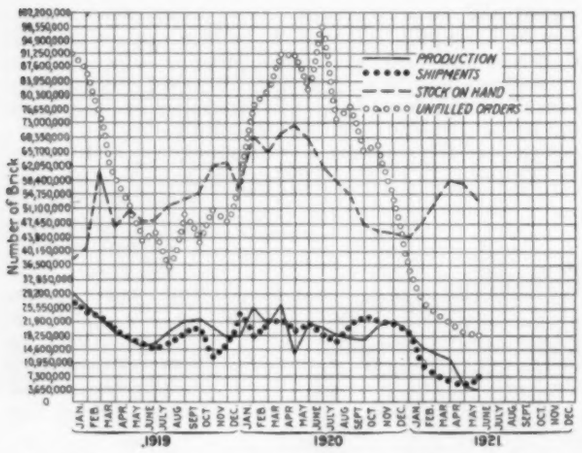
It is expected there will be little difficulty in arriving at an agreement on the sheet scale, as both sides have agreed to retention of the old base rates, but disagree upon the question of retaining an extra man on the crews, added during the war. In the tin mill scale, manufacturers are pressing a reduction in the rate of advance above the base of $3.50 per 100-lb. box of prime plates, from 1 1-8 per cent. for each 5c increase, to one per cent.

The business of the Isaac A. Sheppard Co., established in 1860 and long known as a maker of stoves, ranges and heating apparatus, is to be sold by the receivers, George W. Barr and William E. Wagner. The plant is located at Eastern Avenue and Chester Street, Baltimore, and the receivers, who will take bids by Aug 1, point out the location of the site for eastern and southern business.

## REFRACTORY INDUSTRY

### Valuable Information Made Public in Harmony With Secretary Hoover's Policy

The Refractories Manufacturers' Association, which embraces almost all of the manufacturers of fire clay brick and other refractories in the country, is among the first to adopt the suggestion recently made by Secretary of Commerce Hoover that trade associations should make public such production statistics as have hitherto been compiled exclusively for circulation among the memberships of such associations. The accompanying charts, giving the production, shipments, stock on hand and the unfilled orders of fire clay and silica brick from Jan. 1, 1919, to May 31, 1921, in-




Production, Shipments, Stocks and Unfilled Orders, Silica Brick

clusive, are the result. Although the charts were made up under the direction of the Refractories Manufacturers' Association, the figures are those for the entire industry and are not confined to the reports alone of the members of the association.

The charts provide a perfect picture of the industry over a period of almost two and one-half years and also reflect conditions within the iron and steel industry, since in excess of 90 per cent of the production of fire clay and silica brick goes to the latter industry. Like the iron and steel industry, the peak of unfilled orders in fire clay and silica brick was reached in the summer of 1920. At the end of May, 1920, the unfilled orders for fire clay brick were around 360,000,000, this representing a rise in this item from the previous low point in November, 1919, of about 240,000,000 brick. The curve of unfilled orders, starting with June, 1920, has been uninterruptedly downward, being almost perpendicular during the latter part of last year, when cancellations were heavy in keeping with the recession in business in iron and steel and the consequent curtailment in furnace repairs and relinings.

Stocks of fire clay brick reached low ebb last November and since have been on a gradually increasing scale, due to the continued downward trend of shipments and the fact that in spite of drastic curtailment of production, some surplus of production over shipments could not be avoided if the manufacturers were to maintain some semblance of working organizations. As of May 31, 1921, stocks on hand of fire clay brick were about 201,000,000, as compared with 212,000,000 on the same date in 1920 and about 230,000,000, the high point reached in September, 1919, when the industry still was feeling the impulse of the wartime demand. Unfilled orders at the end of May were about 45,000,000, as compared with 360,000,000 a year ago, a decline in a year of 315,000,000, or 700 per cent. The chart discloses that production since last December has run somewhat in excess of shipments, in contrast with the conditions of the previous six months, when the reverse was true.

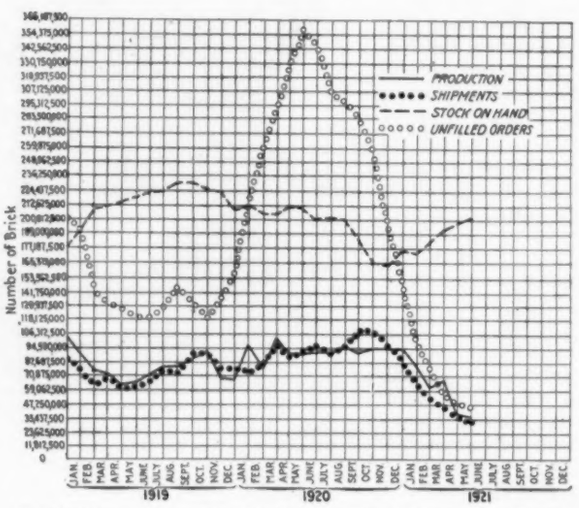
Conditions with regard to silica brick were similar to those in fire clay brick in a general way. It is noted however, that the peak of unfilled orders did not come until July of last year, as compared with May, when the industry had its largest order book in fire clay brick. Also, it will be observed the line of stocks on hand in silica brick was pointed downward at the end of May, while it was in the other direction in fire clay brick. And the last month of the period showed shipments of silica brick to be running ahead of production, or the opposite of the situation in fire clay brick.

### Gas Mask for Carbon Monoxide

A public demonstration of a gas mask for protection against carbon monoxide, manufactured by the Mine Safety Appliances Co., Pittsburgh, and in which is utilized the special chemical mixture called Hopcalite, developed by the U. S. Bureau of Mines and Chemical Warfare Service, U. S. Army, was given recently in the special smoke room of the U. S. Bureau of Mines, Pittsburgh.

In the test two men entered the smoke room which contained one per cent of carbon monoxide gas in the air. The wearers of the mask remained in the atmosphere for 30 min., doing vigorous work part of the time, and experienced no ill effects whatever from the poisonous carbon monoxide gas. The gas masks are claimed to have given protection throughout the entire period of the test.

The carbon monoxide gas mask is of special interest to iron and steel industries, fire departments, in-




Production, Shipments, Stocks, Unfilled Orders, Fire Clay Brick

dustries using gas producers, illuminating gas plants, coal and metal mines and to all other persons who are apt to encounter carbon monoxide gas in their work.

Welding a steam line approximately one mile in length was successfully accomplished at the plant of the Dayton Lighting Co., Dayton, Ohio. The line is constructed of 10, 12 and 14-in. pipe and carried a pressure of about 200 lbs. During construction the line was frequently tested with cold water at a hydraulic pressure of from 400 to 500 lb., and when steam was turned into the line it was found light in every joint. The electric welding process was used, the work being done by the Ohio Wilson Welding & Repair Co., Dayton.

The open-hearth plant and rolling mills projected by the Automobiles M. Berliet at Venissieux, near Lyons, France, are to be abandoned by that company. Efforts are now being made to interest a Lorraine group of iron masters to take over the semi-completed plant. An account of the equipment, most, if not all, of which was bought in the United States, was given in THE IRON AGE of March 27, 1919.

## PIG IRON COSTS

### Producer Gives Figures as to Production and Freight Rates

Asked by an official of the Pennsylvania Railroad to give his ideas as to the extent the present freight rates were stifling the business of producing pig iron and consequently the other products manufactured from iron ore, a prominent western Pennsylvania pig iron producer made the following observations:

"The year 1913 was the last year in which the distribution of iron and steel products might be considered normal; that is, the distribution of them was unaffected in 1913 by any extraordinary causes and it seems proper to take the year 1913 as a point of comparison against present conditions. In the matter of freight rates charged in assembling of raw material necessary to make a ton of pig iron at Valley furnace, the following is illustrative:

*Freight Rates*

| | 1913 | 1920 |
|---|---|---|
| Coke | $1.32 | $2.77 |
| Stone | .17 | .42 |
| Ore, upper rail | 1.20 | 2.00 |
| Ore, lake | 1.10 | 2.48 |
| Ore, lower rails | 1.12 | 1.99 |
| Supplies (estimated) | .25 | .50 |
| | $5.16 | $10.16 |
| Taxes | | .31 |
| | | $10.47 |

"The above figures show that the freight rates in these assembling processes have increase $5.31 and while by a reduction of 30c. a ton in the carrying rate on the Great Lakes, the replacement cost of the ore from a freight standpoint has been reduced about 60c. a ton, Valley blast furnace managers will make pig iron this year, if any, from inventory material, which is loaded with the 1920 freight rates. Taking this view of it and following the iron ore through the blast furnace strictly along the lines of cost of production of other materials and disregarding their market prices, we have the following situation:

*Cost of Producing Pig Iron Per Ton at Valley Furnace Now*

| | |
|---|---|
| Freights | $10.47 |
| Ore at Minnesota mines | 6.40 |
| Coke at Connellsville ovens | 3.30 |
| Stone at quarry | .70 |
| Costs above material | 4.00 |
| | $24.87 |

"In passing, let me say that the average market price of basic iron, Valley furnace, in 1913 was $14.63. The market price to-day is something less than $20, at the same point: (say $19.50).

"Since Jan. 1, this year, substantial reductions have been made in the cost of mining ore, coal and stone, none of which operations so far as the blast furnace industry is concerned is unionized in any substantial degree. It is within all the probabilities that the costs of producing these materials may be still further reduced, which probability extends to the 'costs above materials' excepting the item of taxes and as they are affected by your charges for switching.

"I hope I have made clear one of the fundamental things which is causing the present stagnation in the iron and steel business, thereby almost eliminating the commodities upon which many of your expectations of revenue are based and upon the free movement of which the prosperity of the iron and steel business generally depends.

"Allow me to say that it cannot be expected that labor in all other industries should be called upon to stand all of the burden of the reductions which are necessary and allow railroad labor to escape.

"It might be said too, that some of our friends in the pig iron manufacturing business will add an item to the figures we have given you, growing out of the very substantial increases made in the matter of wasting, to which we are not subject because we merchandise most of our former waste products, and also attention will be paid to the very substantial rates charged for docked ore; our figures dealing only with direct ore. Most of them too, will necessarily add something to the ore figures because ours are based on actual cost."

## Ore Rates Declared Unreasonable

WASHINGTON, July 5.—Passing on the complaint of the St. Louis Coke & Chemical Co. vs. Alton & Southern, et al., the Interstate Commerce Commission has condemned as unreasonable rates on iron ore from Hurley, Florence and Baraboo, Wis., and Iron River, Iron Mountain and Ironwood, Mich., to Granite City, Ill., established on Aug. 26, 1920. New rates of $2.35 per ton from Baraboo and $3.25 from the other points of origin are to be established to Granite City not later than Sept. 1. These will be 15c. higher from Baraboo and 25c. higher than they were prior to the general advance on Aug. 26, last year. The rates held to be unreasonable are $2.836 from Baraboo and $4.05 from the other points mentioned.

The complaint contended that the rates on ore do not bear a proper relationship to the rates on coal northbound; that if properly related rates were made on the ore the southbound empty movement of cars would be greatly lessened. The commission said the testimony did not show any recognized relationship of rates on coal northbound and ore southbound. The complainant showed many rates on ore to other destinations made from 60 to 70 per cent of the rate on coal in the reverse direction.

Traffic officials from the Alton and the Wabash railroads admitted that the rates are relatively unreasonable because out of proportion with the rates to blast furnace and by-product coke plants served by rail-lake-and-rail hauls. They suggested that $3.25 would be a reasonable rate from the points of origin other than Baraboo and what they suggested, the commission prescribed.

The complaining plant, producing pig iron, coke and by-products, has been in operation since May, 1920, and up to the time of the hearing 110,000 tons of ore had been moved. The complainant said that if proper ore rates were made the movement of ore to Granite City would be approximately 2,400,000 tons as a counter-balance for 4,000,000 tons of coal moving in the other direction.

## Cost of Living Slowly Falling

Figures prepared by the Bureau of Labor Statistics of the Department of Labor, Washington, show that about one-third of the maximum advance since 1913 in the budget of the average family has been annulled by the descending scale of prices. Wholesale prices have fallen much faster; it is the retail prices of clothing and furniture, and the recent advance in rents, which have retarded the fall in the family expenditures. In terms of a $1,500 living cost in 1913, and the same standards since then, the figures follow:

| | 1913 | a1919 | a1920 | b1921 |
|---|---|---|---|---|
| Food | $573 | $1,054 | $1,255 | $829 |
| Clothing | 249 | 534 | 716 | 554 |
| Housing | 201 | 230 | 271 | 320 |
| Fuel and light | 80 | 116 | 138 | 145 |
| Furniture and furnishings | 77 | 174 | 225 | 191 |
| Miscellaneous | 320 | 554 | 644 | 668 |
| Total | $1,500 | $2,662 | $3,249 | $2,707 |

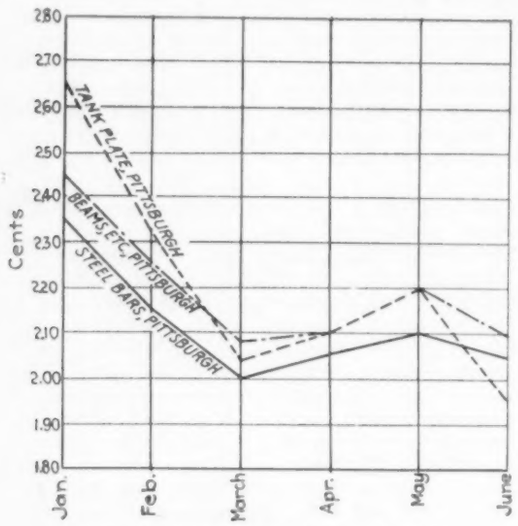
a—Based on figures for June. b—Based on figures for May.

**For the past several years it has been the custom of the Youngstown Sheet & Tube Co., Youngstown, Ohio, to award to any of its employees by whose act a life is saved by reason of accident, or bodily injury averted, a solid gold safety fob. Such a fob was recently presented Joseph Kukura, a helper on No. 3 blast furnace, in the presence of officials of the company. In presenting the fob, Safety Director James M. Woltz complimented the blast furnace department for its success in holding accidents to a minimum. E. T. McCleary, assistant general superintendent, said that with the Sheet & Tube company it will continue in the future as in the past, Safety First, then quality and tonnage. Kukura, recipient of the fob, rescued a fellow employee who had fallen in a hot cinder bed.**

# TREND OF HALF YEAR

## Readjustment of Prices of Pig Iron and Finished Materials in Past Six Months

Looking back over the course of prices on pig iron and steel products during the first six months of 1921, it may be noted that the downward trend has proceeded in orderly fashion. Aggregate price reductions during this period have varied according to products, the greatest drop being on galvanized steel sheets, the price of which at the end of June was $19 a ton below its Jan. 1 quotation. Plates have declined $15 a ton, structural shapes, $9 to $10, steel bars, $7 to $8 and wire products $5 to $7. In pig iron the reductions have been proportionate. Basic, Valley furnace, declined $9.50 during the six-month period, while foundry iron at Philadelphia has shown a decline of about $8, at Chicago $12, and at Birmingham $13.




Prices of Tank Plates, Beams and Bars—Jan. 1 to June 30, 1920

This rate of decline is the best answer to those self-appointed critics of the steel industry, who profess to see the whole economic readjustment being delayed by the alleged failure of the steel trade to assume its share of liquidation in commodity prices. Many market observers, including a considerable number of steel consumers, in comparing present steel prices with pre-war prices, take the low levels which existed in 1914 as a basis for a "normal" market. Steel prices in the latter part of 1914 were the lowest in a ten-year period, and hence are not truly representative of the general average of steel prices before the war. A ten-year pre-war average is undoubtedly a fairer measure of comparison, and if this is followed it will be noted that 1921 steel prices have already reached a point that is roughly, only $10 to $12 a ton above the pre-war average.

For example, the ten-year average for plates, 1905 to 1914, inclusive, was 1.47c., Pittsburgh, whereas plates in the last week of June were easily obtainable at 1.90c., Pittsburgh, a difference of only $8.60 per net ton. Structural shapes were obtainable at the end of June at 2c., Pittsburgh, the ten-year pre-war average being 1.48c., Pittsburgh, an advantage in the present price of only $10.40 per net ton. Steel bars are to be had at 1.95c. to 2c., Pittsburgh, which is $11 80 or $12.80 higher than the pre-war average.

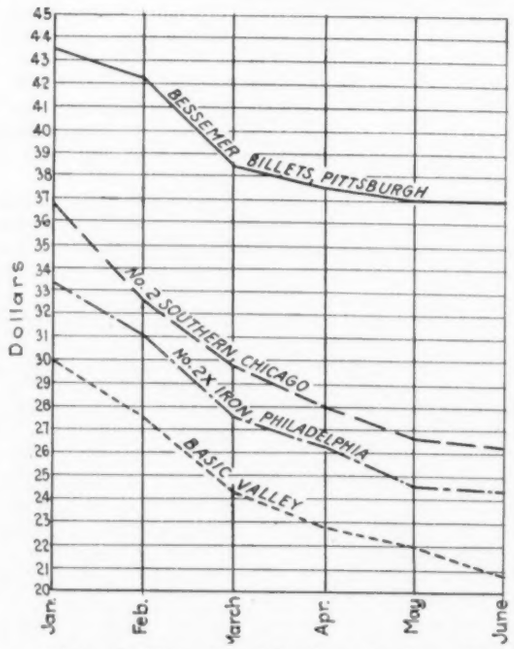
In pig iron the price reductions of the first half of the year have, in a few instances, been drastic. Basic iron at Valley furnace has declined from $30 on Jan. 1 to $20.50, a drop of $9.50, or more than 30 per cent. No. 2 foundry iron at Chicago has declined during the six-month period from $31.50 to $20.50, a total of $11. Other grades have declined proportionately. The greatest drop is in Alabama iron, which declined from $35 to $22. The ten-year pre-war average for basic iron, Valley furnace, was $15.57, as compared with $20.50 the last of June, the difference representing approximately the increased cost of assembling the raw materials, ore, coke and limestone in freight rates and labor costs alone, not counting higher costs of these raw materials. The ten-year pre-war average for No. 2X iron, Philadelphia, was $17.46, as compared with $25.50, quoted the last week in June.

In semi-finished steel the decline has not been so great during the first half as in finished steel. Billets have dropped only $6.50 per gross ton.

The accompanying table shows the monthly averages for several grades of pig iron, semi-finished steel and finished steel for the first half of the year, as compiled from THE IRON AGE price tables.

*Prices of Leading Products for First Half of 1921*

| | Jan. | Feb. | March | April | May | June |
|---|---|---|---|---|---|---|
| No. 2X pig iron, Philadelphia | $33.34 | $31.09 | $27.59 | $26.26 | $25.71 | $25.50 |
| No. 2 Southern, Cincinnati | 36.75 | 32.65 | 29.80 | 28.00 | 26.70 | 26.37 |
| No. 2, Chicago | 31.50 | 29.00 | 25.60 | 24.00 | 22.80 | 20.75 |
| Basic, Valley furnace | 30.00 | 27.50 | 24.25 | 22.88 | 22.00 | 20.75 |
| Bessemer iron, Pittsburgh | 33.96 | 31.46 | 28.16 | 26.96 | 25.96 | 24.71 |
| Bessemer billets, Pittsburgh | 43.50 | 42.25 | 38.40 | 37.50 | 37.00 | 37.00 |
| Wire rods, Pittsburgh | 57.00 | 54.50 | 52.00 | 49.00 | 48.00 | 48.00 |
| Steel bars, Pittsburgh | 2.35c. | 2.15c. | 2.00c. | 2.05c. | 2.10c. | 2.05c. |
| Tank plates, Pittsburgh | 2.65c. | 2.33c. | 2.04c. | 2.10c. | 2.20c. | 1.95c. |
| Beams, etc., Pittsburgh | 2.45c. | 2.26c. | 2.08c. | 2.10c. | 2.20c. | 2.10c. |
| Wire nails, Pittsburgh (per 100 lb. keg) | $3.25 | $3.21 | $3.02 | $3.13 | $3.05 | $3.00 |




Prices of Billets, No. 2 Southern Pig Iron, No. 2X and Basic—Jan. 1 to June 30, 1921

During the first five months of the present year 806 men have been killed by accidents at coal mines, according to reports received by the United States Bureau of Mines, against 874 killed during the corresponding months of 1920, a decrease of 68 fatalities, or 7.8 per cent. The output of coal for the same months was 201,000,000 short tons in 1921 and 245,000,000 tons in 1920, a decrease during the present year of 44,000,000 tons, or 17.9 per cent. These figures represent a fatality rate of 4.01 per million tons mined in 1921, and 3.57 per million tons mined in 1920.

# Canada's Trade with the United States

## Value Was Largest on Record—Increase in Shipments of Rolling Mill Products an Outstanding Feature—Heavy Movement of Machinery

BY WILLIAM LEWIS EDMONDS

TORONTO, June 27.—Canada's import trade with the United States in iron and steel and products thereof during the fiscal year 1920-21 was marked by several outstanding features.

In value the trade was the largest on record, the total being $226,862,465, an increase over the previous high point of 1917-18 of $37,092,544, or more than 19 per cent. Compared with 1919-20, it is a gain of $48,-200,859, or about 27 per cent, while it is in excess of five years ago by $140,196,705, or nearly 162 per cent.

The proportion the imports of iron and steel from the United States bore to the total from all countries was slightly less than in the previous year, being 92.36 per cent, as against 95.88 per cent. This is nearly altogether due to the fact that there was an increase of over 151 per cent during the year in the imports from the United Kingdom, the total from the latter country having a value of $16,698,085, compared with $6,637,-065 for the fiscal year 1919-20.

### Rolling Mill Products

The most outstanding increase in the imports from the United States was in rolling mill products, the total value of which was $70,750,358, against $41,717,551 in 1919-20 and $62,151,289 two years ago. The following table gives the principal imports from the United States under this classification during the past two years and the total from all countries for the fiscal year 1920-21:

| | United States | | All Countries |
|---|---|---|---|
| | 1920-21 | 1919-20 | 1920-21 |
| Rolled iron or steel and cast steel in bars, bands, etc. | $11,587,594 | $4,563,307 | $13,876,312 |
| Rolled iron or steel hoop, band, etc., 14 g. and thinner | 1,158,614 | 501,636 | 1,158,614 |
| Rolled iron or steel, hoop, band, etc., gal. or coated | 1,124,797 | 608,042 | 1,206,659 |
| Rolled steel, not further mnfd. than cut to shape. | 483,477 | 323,559 | 507,952 |
| Hammered, drawn or cold rolled bars or shapes.. | 390,332 | 194,166 | 391,842 |
| Steel rails | 980,191 | 370,824 | 980,191 |
| Shafting | 445,845 | 157,171 | 448,361 |
| Boiler plate | 1,040,554 | 526,133 | 1,040,554 |
| Canada plates, Russian iron, terne plates, etc... | 1,153,659 | 901,722 | 1,243,108 |
| Tin plate | 8,605,139 | 6,556,216 | 8,902,463 |
| Plates not less than 30 in. wide and not less than ¼ in. thick | 2,603,421 | 1,168,601 | 2,603,921 |
| Plates or sheets, sheared or unsheared | 1,178,474 | 858,598 | 1,179,926 |
| Sheets, 14 gage and thinner. | 5,866,282 | 2,979,161 | 6,497,410 |
| Galvanized sheets, flat ... | 2,584,206 | 912,819 | 3,566,291 |
| Skelp, sheared or rolled in grooves | 5,963,149 | 4,294,019 | 5,963,149 |
| Wire rods | 1,630,836 | 1,135,348 | 1,630,836 |
| Angles, beams, channels, etc. | 8,833,877 | 3,959,625 | 8,850,134 |
| Steel plate over 12 in. wide for structural work. | 1,532,521 | 729,927 | 1,532,521 |
| Boiler tubes | 2,505,642 | 1,252,973 | 2,640,125 |
| Wrought or seamless tubing | 1,307,940 | 624,917 | 1,313,853 |

### Smelted Products

In smelted products the imports from the United States more than doubled, having a value of $3,750,261 against $1,442,401 the previous year. The principal items were:

| | United States | | All Countries |
|---|---|---|---|
| | 1920-21 | 1919-20 | 1920-21 |
| Ferromanganese | $577,505 | $7,257 | $1,247,827 |
| Pig iron | 2,287,027 | 778,187 | 2,311,184 |
| Billets, less 60 lb. lineal yd. | 476,503 | 466,698 | 549,425 |
| Ingots, blooms, puddled bars, etc. | 253,245 | 6,187 | 253,245 |

### New Record in Machinery Imports

Imports of machinery were the largest on record, and more than double in value those of 1916. The total for all kinds except agricultural machinery was $40,-766,905, an increase over the previous year of $6,479,952. The most outstanding increases were in textile, pulp and paper mill and printing machinery. Principal items for the two years were:

| | United States | | All Countries |
|---|---|---|---|
| | 1920-21 | 1919-20 | 1920-21 |
| Steam and electric shovels. | $569,722 | $398,195 | $569,722 |
| Ore and rock crushers .. | 729,420 | 408,118 | 788,820 |
| Adding machines | 953,253 | 923,512 | 955,373 |
| Cash registers and parts. | 322,007 | 225,944 | 322,007 |
| Typewriting machines .... | 998,481 | 1,042,345 | 1,001,587 |
| Bookbinding and ruling machinery | 777,007 | 519,975 | 791,029 |
| Printing and lithographic presses | 1,631,314 | 947,230 | 1,639,505 |
| Typecasting and typesetting machines | 1,244,256 | 899,904 | 1,244,504 |
| Air compressing machines. | 263,219 | 249,639 | 305,179 |
| Cement making machines.. | 133,065 | 32,510 | 135,042 |
| Coal handling machines.. | 166,818 | 102,777 | 168,577 |
| Concrete mixing machines. | 86,205 | 59,546 | 86,405 |
| Cranes and derricks | 848,157 | 1,005,199 | 876,717 |
| Power lathes | 542,246 | 741,330 | 565,337 |
| Paper mill machines .... | 1,296,543 | 939,302 | 1,988,945 |
| Pulp mill machines | 415,252 | 102,033 | 499,048 |
| Rolling mill machines.... | 646,087 | 533,308 | 646,635 |
| Saw mill machines | 320,543 | 200,125 | 321,969 |
| Textile machinery | 4,932,506 | 2,056,400 | 6,199,562 |
| Machinery, wholly or in part of steel | 19,704,650 | 17,386,182 | 20,977,346 |

### Striking Gains in Engines

There were some striking increases under the classification of "Boilers, engines, windmills and pumps." The aggregate value under this classification was $25,-220,438, against $22,705 319 the previous year. There was a decline in the imports of automobile engines of nearly $3,000,000 and in gasoline and gas engines of nearly $800,000, but on the other hand there was an increase of $5,398,552 in traction engines for farms. The principal imports were:

| | United States | | All Countries |
|---|---|---|---|
| | 1920-21 | 1919-20 | 1920-21 |
| Steam boilers and parts.. | $493,434 | $374,183 | $861,508 |
| Automobile engines | 5,387,416 | 8,402,351 | 5,388,444 |
| Gas and gasoline engines. | 2,175,077 | 2,960,728 | 2,257,870 |
| Steam engines | 443,968 | 454,403 | 505,182 |
| Railway locomotives .... | 542,643 | 523,732 | 542,643 |
| Parts of traction engines. | 1,871,647 | 1,404,969 | 1,871,647 |
| Traction engines for farms | 12,597,316 | 7,198,764 | 12,603,592 |
| Power pumps | 1,201,506 | 910,713 | 1,255,244 |
| Hand pumps | 293,451 | 247,478 | 298,901 |

### Increase in Agricultural Implements

Imports of agricultural implements from the United States had a value of $11,431,444, an increase over the previous year of $4,639,199, and the largest by $1,787,-000 ever experienced. Principal imports were:

| | United States | | All Countries |
|---|---|---|---|
| | 1920-21 | 1919-20 | 1920-21 |
| Cream separators and parts | $1,828,078 | $1,373,923 | $2,110,537 |
| Harvesters, self-binding .. | 1,106,426 | 641,210 | 1,118,133 |
| Potato diggers | 101,267 | 53,015 | 101,267 |
| Cultivators | 177,170 | 78,432 | 177,170 |
| Harrows and parts | 382,554 | 255,357 | 382,770 |
| Plows and parts | 2,526,472 | 1,795,438 | 2,526,503 |
| Threshing machine separators | 1,534,572 | 808,059 | 1,534,572 |
| Parts threshing machine separators | 1,056,794 | 442,505 | 1,056,929 |
| Plow parts, mold boards, etc. | 778,667 | 409,059 | 778,667 |

### Cutlery and Hardware

Except in knives and forks of steel and scissors, cutlery imports from the United States experienced a decrease as a result of the increase in the imports from the United Kingdom. Taking cutlery and hardware as a whole, however, there was an increase of $420,389, the figures for the two years being $3,815,885 and $3,395,-496 respectively. The figures covering imports from the United Kingdom were $1,938,585 and $819,430, an increase for the year of $1,119,155. The principal im-

ports from the United States under the classification of "cutlery and hardware" were:

| | United States | | All Countries |
|---|---|---|---|
| | 1920-21 | 1919-20 | 1920-21 |
| Knives and forks of steel. | $301,742 | $266,424 | $723,916 |
| Pen - knives and pocket knives | 104,297 | 192,882 | 704,225 |
| Razors of all kinds | 41,109 | 104,128 | 173,483 |
| Scissors and shears | 233,907 | 138,205 | 297,414 |
| Cutlery n. o. p. | 253,442 | 267,838 | 570,260 |
| Builders' hardware | 703,950 | 657,472 | 784,815 |
| Locks of all kinds | 676,418 | 560,380 | 702,142 |
| Butts and hinges | 164,078 | 116,300 | 165,642 |
| Nails, wire | 197,786 | 83,726 | 197,807 |
| Nuts, rivets and bolts | 389,355 | 316,518 | 395,632 |
| Screws | 180,369 | 141,062 | 182,538 |

Under the classification of tools and hand implements there was a substantial increase in the imports from the United States, the trade having a value of $2,315,480, against $1,942,036 the previous year. As the total imports from all countries had a value of $2,562,029, it will be seen that the lion's share of the trade fell to American manufacturers. Although there was a decline of about $10,000 in the imports of American stamped and enameled products, it was due to a smaller trade in the less important lines, agateware, ironware and tinware all showing increases. Total trade under this general classification had a value of $937,027, against $947,306 for the previous year.

### Decline in Automobile Imports

Owing to the two-fold influence of special tax and trade depression, a decline in imports of automobiles was to be expected. In passenger cars, imports had a value of $8,339,704, against $11,196,327 the previous year; freight trucks, $3,476,163, against $3,811,139; automobile parts, $11,729,731, against $12,660,789 the previous year. Total imports of automobiles and parts from the United States had a value of $23,545,598, against $27,668,255 the year before, a decline of $4,122,657.

### Electric and Gas Apparatus

Total imports of electric and gas apparatus from the United States had a value of $16,343,425, compared with $15,371,461 the previous year. The principal items were as follows:

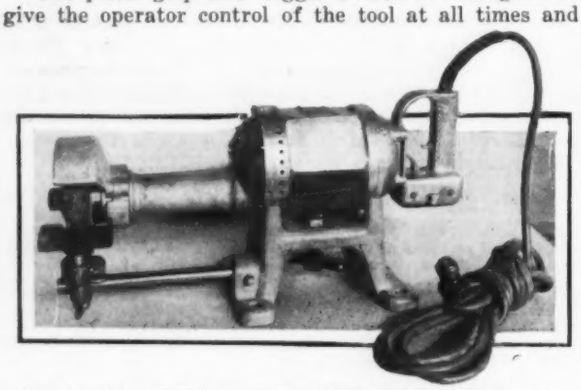
| | United States | | All Countries |
|---|---|---|---|
| | 1920-21 | 1919-20 | 1920-21 |
| Batteries, storage | 1,363,986 | $1,470,479 | $1,364,456 |
| Cooking and heating apparatus | 127,627 | 111,148 | 129,575 |
| Dynamos and generators (electric) | 1,227,398 | 1,039,067 | 1,323,664 |
| Meters | 352,348 | 243,252 | 376,968 |
| Electric motors | 2,578,807 | 1,956,639 | 2,628,734 |
| Sockets | 300,935 | 138,312 | 304,160 |
| Telephone instruments | 889,553 | 649,994 | 922,357 |
| Transformers | 167,427 | 123,118 | 167,427 |
| Electric apparatus n. o. p. | 7,296,540 | 7,311,499 | 7,633,425 |
| Electric light fixtures | 650,548 | 698,879 | 668,475 |
| Electric lamps | 998,832 | 1,163,126 | 1,213,246 |
| Gas and oil fixtures | 132,821 | 140,066 | 136,758 |

With the enormous hydro-electric power developments and electric railway expansions which are under way in various parts of the Dominion, and particularly in the provinces of Ontario and Quebec, imports of electric apparatus will probably be extensive for some time to come.

## Portable Electric Grinder

The Black & Decker Mfg. Co., Baltimore, is adding to its line of electric drills the portable electric grinder shown in the accompanying illustration.

The pistol grip and trigger switch are designed to give the operator control of the tool at all times and



Pistol Grip and Trigger Control Make It Unnecessary to Shift Either Hand to Start or Stop Machine

to make it unnecessary to shift either hand to start and stop it. Although essentially portable, the machine is supplied with a detachable base and adjustable tool rest, as shown, so that it can be used with equal facility as a bench grinder. The equipment also includes two 5 x 1 in., grinding wheels, one fine and one coarse; a wire brush wheel and a rag buffing wheel. The machine is designed for a wide range of usefulness in machine shop, foundry and garage work.

The mechanism is protected from dust and foreign matter, has grease lubrication throughout and forced air cooling. Gears and shafts are of chrome nickel steel and the housing of aluminum alloy. The grinder can be operated on either direct or alternating current. The motor is ½ hp., with a no load speed of 3200 r.p.m. The diameter of the wheel arbor is ¾ in., and the net weight, without base, 21 lb.

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The Building Trades Council of Cincinnati has adopted resolutions calling for a grand jury investigation of the building industry in Cincinnati, following charges of collusion between employers and employees to keep costs of building up, made at a meeting to consider the building situation.

## New Plant for Making Detinned Billets

The Metal & Thermit Corporation has constructed and will shortly place in operation in South San Francisco, Cal., a large new plant for the production of hydraulically compressed detinned billets, in addition to the detinning plants already operated by this company for several years at Chrome, N. J., and East Chicago, Ind.

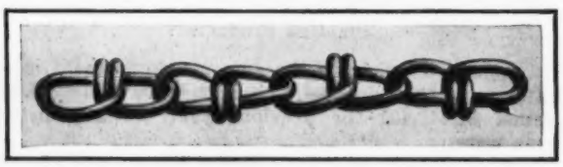
The new South San Francisco plant has also been equipped with a welding shop for repairing by the Thermit process. The new plant will be in charge of Em. Kardos, superintendent. The former offices of the company at 329-333 Folsom Street, San Francisco, have been moved to the South San Francisco plant.

## Fiftieth Anniversary of Shipyard

Commemorating the fiftieth anniversary of the establishment of the Roach shipyard at Chester, Pa., now the property of the Merchant Shipbuilding Corporation, the latter organization has published an attractive issue of its employees' magazine, The Chester *Compass*, devoted almost exclusively to a history of the business from the time it was started by John Roach, sometimes called "the father of American iron and steel shipbuilding." J. H. Loughran is editor and business manager.

## New Design of Weldless Machine Chain

A new design of weldless machine chain known as Noweld chain has been brought out by the Chain

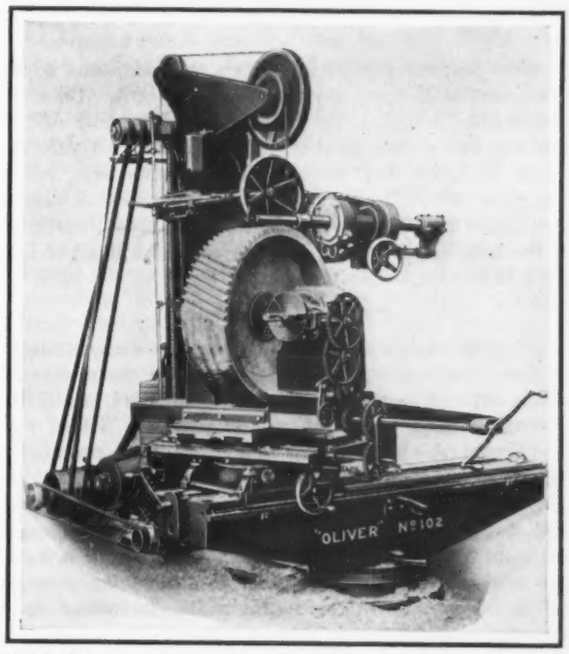


Products Co., Cleveland. It is a woven steel wire chain intended for manufacturing purposes where machine chain is required, and to take the place of electrically welded machine chain. The maker points out that in making the weldless type of chain, high carbon or even an alloy steel can be used, increasing the tensile strength or giving the exact physical characteristics wanted.

## Gear Cutting Attachment for Pattern Milling Machine

A complete set of appliances for cutting spiral, spur, bevel and worm gears has been marketed by the Oliver Machinery Co., Grand Rapids, Mich., for use with its No. 102 wood pattern milling machine.

The outfit includes a 14 in. universal dividing head with tail stock, index plate, index chart, two face plates, a set of raising blocks, recessing change gears, quadrants, and a connecting mechanism installed between the table and the dividing head. The machine is so arranged that in turning spirals the gear pattern rotates according to the spiral as the cutting progresses from the back edge to the front edge. In cutting a bevel gear pattern 30 in. in diameter, 12 in. face, the makers state that very close proximations of the theoretically




Wood Pattern Milling Machine Equipped with Gear Cutting Attachment

perfect bevel gear patterns may be made in a few hours as against several days required in the ordinary methods. The attachment shown in the accompanying illustration is known as the No. 733.

### Establish Open Shop

Ten of the 22 boiler and sheet iron manufacturers of St. Louis have established the open shop. They are: Ruemmeli-Dawley Mfg. Co.; Hummel Mfg. Co.; Missouri Boiler & Sheet Iron Works; Philip A. Rohan Boat, Boiler & Tank Co.; Alois Aufrichtig Cooper & Sheet Iron Mfg. Co.; John Nooter Boiler Works Co.; Heine Boiler Co.; John O'Brien Boiler Works Co.; William Koch Boiler & Sheet Iron Repair Works and Campbell & Dwyer Boiler & Sheet Iron Works. When the contract with the Boilermaker and Helpers' Union expired, the men demanded its continuation at the old rate of $1 an hour for layers out, 90 cents an hour for boilermakers and 70 cents an hour for helpers. The manufacturers' counter offer of 90c., 80c. and 50c. respectively was rejected. Eleven signed with the union, the others became open shops.

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At a dinner last week at the Norton Boat Club, Lake Quinsigamond, 49 employees of the Norton Co., Worcester, Mass., grinding machinery and abrasives, were presented gold medals and framed engraved certificates signed by the directors, in recognition of 25 or more years service. A. C. Higgins, treasurer, made the presentations. The medal on one side shows a grinding wheel flanked by two mechanics, and on the reverse side bears the name of the recipient and the words "Presented by the Norton Co. in Recognition of 25 Years of Faithful Service."

## Statistics of Commodity Consumption from Warehouses

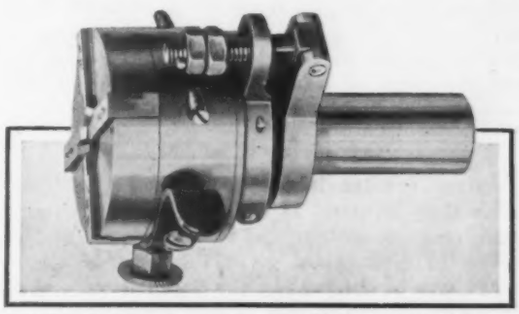
The necessity for statistics as to consumption of commodities from warehouses was stressed in the paper read by L. T. Crutcher, representing the domestic distribution department of the Chamber of Commerce of the United States, before the Central Warehousemen's Club, Chicago, July 1. He said: "Statistics are important in periods of depression to indicate when operations in any particular line may be enlarged safely; and in times of prosperity they furnish a light by which the prudent may be guided. Briefly, accurate statistics such as you warehousemen could prepare would act as a trade stabilizer." He stated further: "Since the value of money is based wholly upon its power in purchasing commodities; and since the warehousemen hold the commodities, it seems reasonable to believe that in due time they will be able to design negotiable paper which will be as carefully safeguarded, equally elastic and as widely accepted as is that of bankers." Mr. Crutcher also advocated pool-car shipments.

### New Style DS Geometric Die Head

A new style DS Geometric self-opening and adjustable die head, primarily designed for Brown & Sharpe automatic screw machines but also adapted to other makes of automatics, has been placed on the market by the Geometric Tool Co., New Haven, Conn. The die head is simple and compact and does not depend on the turret feed but floats to suit the thread being cut, thereby eliminating stripping and shaving of threads, and making the usual close camming of the machine unnecessary. Where it is used there is no reversing of the spindle to back the die head off the threaded work.

A lever trip is provided which reduces the force of tripping the die head and accordingly lightens the reaction on the threads cut. Buffer springs allow the die head to yield slightly when chasers come in contact with the work, insuring a smooth thread throughout. Two check nuts at the side provide easy adjustment of the point of tripping, and push buttons are provided to eliminate trouble in inserting the chaser. No face plate is necessary, making it possible to use projecting chasers where required for cutting close to the shoulder.

Chasers are of sturdy construction, have long bear-



Buffer Springs Allow the Die Head to Yield When Chasers Come in Contact with the Work

ings in the die head skeleton and are supported by hardened keys, preventing tilting and consequent cutting of taper threads. There are four chasers in each die head.

A spring closing attachment is located in a convenient position to strike a stop on the machine, automatically closing the die head when the turret revolves. It is of especial value when closing the die head rapidly and eliminating shock and wear. The die heads have shanks to fit the particular size machine on which they are to be used, and micrometer adjustment is provided.

They are made in three sizes, 5/16, 9/16 and ¾ in., the shanks being ⅝ x 1 5/16, ¾ x 2 1/16 and 1 x 2⅜ in., respectively. They have a capacity of 1/16 to ¾ in. in diameter, 1¼ in. or shorter to 1⅝ in. in length, and 18 or finer to 10 or finer pitch.

# Many New Features of Tariff Bill

## Administrative Provisions Mark Important Departure

### Differences of Opinion as to Effect of American Valuation Plan—The President Given Large Powers to Negotiate for Reciprocity—Numerous Changes of Rates Already Made and Many More Will Probably Be Adopted—Sharp Opposition to Ferroalloys Tariff Expected

BY L. W. MOFFETT

Washington, July 5.
THE IRON AGE BUREAU,
816 Fifteenth Street.

THE metal schedule of the permanent tariff bill as finally drafted and accepted by Republican members of the House Committee on Ways and Means carries important changes in rates of duty on pig iron, scrap, spiegeleisen, ferrosilicon, ferromanganese and manganese ore from recommendations made by the subcommittee in charge of the schedule which had been tentatively adopted and in part published in THE IRON AGE of June 30. The revisions, determined upon shortly before the bill was given out for publication, lowered rates on pig iron, scrap, and spiegeleisen from $2.50 per ton and placed a duty of $1.25 on these products, as compared with the Payne-Aldrich duty of $2.50 on the former two and $1 on scrap. The reduction in pig iron and spiegeleisen under the act of 1909 therefore was 50 per cent, while on scrap there is an increase of 25 per cent. All three of these products are in the free list in the Underwood-Simmons act. Changes made in the final draft as to the ferroalloys mentioned and manganese ore cleared up conflicts that appeared in recommendations of the subcommittee. There is reason to believe, however, that these items had undergone previous changes at the hands of the subcommittee itself and that, as an instance, manganese ore had been placed on the free list and ferromanganese given the Payne-Aldrich duty of $2.50. Insistence upon protection on these products brought about the duties that have been printed in the bill, and apparently based on the claim that they come under the classification of infant industries. This is one of the outstanding features of the schedule.

#### Crucible Steel Industry

Another feature is the recognition given to the crucible steel industry, as had been urged at hearings, though recommendations made were not specifically followed. The attention given this part of the steel industry may be observed by the classification and rates of duties made with respect to such products as chrome metal, tungsten, vanadium, molybdenum, etc. The placing of ferromanganese in a ferroalloy paragraph instead of in the pig iron class is another interesting change, marking the first time this has been done in tariff history in this country. Request that this be done was made by domestic producers of that alloy. Chrome ore appears in the free list.

#### Follows Payne-Aldrich Law

The metal schedule as a whole on the heavier products follows rather closely the Payne-Aldrich schedule as to duties, but, with some exceptions, carries slightly lower duties and approximately seems to follow the principle that applies to the entire bill as explained by Chairman Fordney of the Ways and Means Committee. He estimated that the duties in the new bill will range between 18 and 20 per cent as compared with 18.55 per cent in the Payne-Aldrich act. The Underwood-Simmons average rate, he said, was 6 per cent and the Dingley average 26½ per cent. Like the Payne-Aldrich act, rates in the metal schedule of the new bill are stated in specific rather than ad valorem terms wherever practicable. There have been many transfers of products from the Underwood-Simmons free list to the dutiable list, but among those continued on the free list is iron ore, which carried a duty of 15c. a ton in the Payne-Aldrich act.

#### Duty on Magnesite

Sharing in interest with regard to disposition of products carried in the metal schedule were several which are consumed by the iron and steel trade, including magnesite, fluorspar, and pig tin. There was considerable discussion over magnesite, with prominent makers of refractories who import material from Austria where they have money invested in mines asking that it be made free, while domestic producers, especially in Washington and California, asked for a duty. The latter have been victorious so far as the present bill is concerned, calcined magnesite, including dead burned and grain, being given a duty of ¾c. per pound, while crude or ground magnesite was made dutiable at ½c. a pound. Fluorspar, for which some interests had asked a duty of $6 a ton, was given a duty of $5, with the provision that after the expiration of one year beginning on the day following the passage of the tariff act, the duty shall be $4 a ton. Tin in bars, blocks or pigs, and grain or granulated tin, were made dutiable at 2c. a pound. There is a provision in the free list, however, which deals with tin ore and pig tin, blocks, and bars, which requires clearing up. It calls for a duty of 4c. a pound on tin ore and 6c. a pound on pig tin, etc., "when it is made to appear to the satisfaction of the President of the United States that the 'mines' of the United States are producing 1500 tons of cassiterite and bar, block, and pig tin per year," the President to make the fact known by proclamation, after which the duties would become operative. This paragraph, except for placing a duty of 6c. on pig tin, etc., is similar to the one in the present act, which would apply a rate of 4c. to the pig tin as well as to the ore. So far as it applies to ore it perhaps is not important because no tin ore is mined in the United States, but as the paragraph reads, it relates to the "mining" of pig tin, bars, etc., and if these commodities were manufactured to the extent of 1500 tons it might be questionable whether the 6c. rate could technically be applied. Zinc and lead-bearing ores are given the same duties as those carried in the Payne-Aldrich act, the former ranging from ¼c. to 1c. per pound on the zinc content for 10 to more than 25 per cent material, and free when under 10 per cent. The Underwood-Simmons act carries a flat ad valorem duty of 10 per cent. Restoration of the Payne-Aldrich duty of 1½c. per pound on the lead content doubles the present duty of

¾c. Crude aluminum and aluminum scrap are given a duty of 5c., as compared with 7c. in the Payne-Aldrich act and 2c. in the Underwood-Simmons act, while aluminum plates, sheets, etc., are given a duty of 9c. as compared with 9c. and 3½c., respectively.

### Important Departures

Administrative features in the bill mark some wide departures in tariff making. Undoubtedly one of them, a provision that has been the source of sharp differences of opinion, not only as between Democrats and Republicans, but also between the Senate Committee on Finance and the House Committee on Ways and Means, regardless of party, is that fixing duties on an American valuation basis. The Senate committee refused to approve this provision in the emergency bill as the latter passed the House and it now is under attack by House Democrats, one of whom, Representative Garner of Texas, ranking member of the Committee on Ways and Means, states that the rates in the new tariff bill, when considered in the light of American valuations, are much higher than in any tariff passed by Congress since the Civil War. This claim is vigorously denied by Representative Fordney and is one of many evidences that the bill is going to be subjected to much controversy. The American valuation provision is apparently not clearly understood, and has caused many members of Congress to hesitate about comparing rates of duty in the new bill and the Payne-Aldrich act. Under the present and past laws, the assessment of customs has been based upon foreign value. It is stated that the operation of the section may be made difficult because it calls for assessment of customs upon the value in the American market of a comparable and competitive product, while it is estimated that 50 to 60 per cent of all imports have no standard value. In the case of steel, however, comparison would be simple, and it is assumed the American value would be placed on the Pittsburgh basis. But most steel duties are specific and would not involve valuations. In denying that the American valuation would mean a great increase in rates, the Republican members of the Ways and Means Committee said that because of the higher values in the American market the rates of duty may be decreased 30 per cent without lowering the protection which the rates will afford or the amount of revenue they will produce. Or, according to Mr. Fordney, a duty of 70 per cent, if based on the American valuation, will produce the same revenue and afford the same protection as a duty of 100 per cent if assessed on the present foreign valuation system.

### Bargaining Made Possible

Request made by the Consolidated Steel Corporation, and other interests for a bargaining tariff has been complied with in the new bill, which goes into this interesting feature at considerable length. This provision, in brief, authorizes the President to enter into reciprocal arrangements with foreign countries by treaty, to be ratified by the Senate. One clause also gives the President the right to impose higher duties on articles from countries which discriminate against the United States, while still another provides that within three years the President may conclude reciprocal arrangements with foreign countries by which for five years their articles may be imported into the United States at not more than 20 per cent reduction of the regular rates in the tariff. Provision also is carried repealing the Canadian reciprocity agreement, effective since 1910. The measure authorizes customs officers to obtain verified statements of production costs where it is considered they are necessary and changes to some degree approximately one-half of the customs laws with regard to passage of commodities through customs houses, methods of assessing duties and other definitions to guide customs officials.

The bill is so bulky, contains so much new material, and is the object of such a great variance of opinion, over and above the expected political differences, that there can be no question that it will be the object of sharp debate in both branches of Congress and predictions are made that it will be considerably changed before it passes the Senate, though it is traditionally true that this happens to all tariffs. The bill, however, was the source of many differences among Republican members of the Ways and Means Committee. This is shown by the changes made from recommendations of subcommittees of the various schedules, as to a number of schedules even after the first print of the bill was given out, calling for a revised print, and the issuance of a supplementary change in mimeographed form. Changes in the metal schedules referred to were among those made at a late hour. It is proposed that other changes by way of amendments from Republican members of the Ways and Means Committee will be made on the floor of the House. While this is commonly done, it is claimed that in this instance they may be very important in some instances and not be confined to the more ordinary changes as to phraseology. Whether the metal schedule will be affected by these revisions remains to be seen. It is stated that the House Republican caucus held last Thursday evening developed considerable difference of opinion, and that it then was found amendments would have to be made in order to insure strong Republican support of the bill, which will be fought by Democrats who urged preparation of another bill and a minority report. Under the parliamentary procedure in the House, debate can be limited by special rule, and because of this, Republicans propose to hold amendments down to the minimum and admit only those acceptable to them. It has been proposed to put the bill through the House in two weeks, the intention being to take it up for consideration to-morrow by the full Committee on Ways and Means.

### Hearings in the Senate

Hearings on the tariff before the Senate Committee on Finance, according to Chairman Penrose, will occupy "one or two months" and probably will begin as soon as the bill passes the House. Those who do not look for the House to make changes they desire are waiting to present protests before the Committee on Finance.

This is said to be true with regard to some independent steel interests, and their position denotes that duties on manganese ore and ferroalloys, particularly on ferromanganese, will be the storm center of the metal schedule, which, by reason of additional classifications, is unusually large, consisting of 94 paragraphs as compared with 66 in the Underwood-Simmons act.

They have protested that manganese ore should be placed on the free list and ferromanganese either free listed or given a duty of not more than $10 a ton. Contention is made by them that a duty of 1c. per lb. on manganese ore would mean an added cost of only 7c. per ton to the steel maker who manufactures his own ferromanganese, calculating that the average imports will run about 48 per cent in manganese and that it requires 15 lb. of ferromanganese (taking 2.2 tons of ore per ton of ferromanganese) to make a ton of soft steel. As against this, it is asserted that a duty of 2 1/5c., based on the quantity of ore in a ton of the alloy, on ferromanganese in excess of 1 per cent of carbon—the average tonnage is said to run between 4 and 7.50 per cent in carbon—would be equivalent to $38.43 a ton based on 78 per cent ferromanganese, or approximately 26c. a ton additional in the cost of making steel. On this basis, it is claimed, the annual cost to independent steel makers as the result of the 2 1/5c. ferromanganese duty

would be approximately $5,200,000, estimating their normal finished steel output at 20,000,000 tons. Protests also have been made against any duty on either fluorspar or magnesite, while those urging duties are said to be prepared to support strongly the proposed levies or to ask for higher ones. In the case of fluorspar, consumers have stated that the pre-war price ranged from $4.75 to $7.25 per net ton, f.o.b. mines, and that the duty now is higher than the former market price, while the pre-war price on grain magnesite was $16 per ton, Atlantic seaboard, as compared with a proposed duty of $15 per net ton.

# Chairman Tilson Explains the Metal Schedule

Chairman Tilson of the sub-committee on the metal schedule made the following report in part:

"Whatever may be the facts in regard to other schedules, the rates of duty as carried in the metal schedule of the act of 1897 were revised downward in the act of 1909. A careful comparison of the two acts will show a general and substantial reduction. The revision was well and carefully done, so that comparatively few mistakes were discovered in the administration of this portion of the act in the four years during which the law was in effect. In fact, during all the bitterness of partisan conflict which raged about this law during its four years of life very little adverse criticism, except the most general kind, was ever made against the metal schedule.

"The highest tribute, however, was paid to the 1909 revisers of Schedule C by those who revised the same schedule in 1913. The revision of this schedule in 1913 could not by any stretch of the imagination be called a scientific revision. A few paragraphs were transferred to the free list. In a much larger number of cases, the carefully prepared specific rates were stricken out and either a blanket ad valorem rate or a series of more or less haphazard ad valorem rates substituted, while in the cases where ad valorem rates were applied in the act of 1909, the rates were quite generally reduced, many of them disastrously so, as subsequent events fully proved. Although ruthlessly hacked and distorted in many of its features shorn of its symmetry and rendered impotent in most respects to perform the useful functions for which it was originally designed and fitted, nevertheless the frame work and in general the classifications of the old schedule were carried over to the new in the 1913 revision.

### Same General Structure

"Although conditions have materially changed in many of the metal industries since 1909 and 1913, nevertheless the same general structure of the schedule as carried in the two preceding acts is here used. Many of the classifications remain substantially the same, while in many other cases classifications have been prepared to meet the new conditions.

"In the four normal years from 1909 to 1913 the rates of duty carried in the act of 1909 proved on the whole to be reasonably protective without being excessive or prohibitive and the metal industries thrived. As soon as general business conditions return to approximately the pre-war normal many of these rates will doubtless again measure with reasonable accuracy the proper rate level. Acting upon the belief that this will be true, a number of rates which had proved satisfactory in pre-war normal times have been restored to this bill. In other cases, time and war have so changed conditions that different and sometimes higher rates have been rendered necessary.

"Difficulties have been encountered at every step in the committee's efforts to secure satisfactory information as to industrial conditions throughout the world and even at home. Government statistics mean less and have been less valuable than ever before. Statistics for the period of the war and immediately following are practically of no value whatever. Statistics showing the exports and imports during the operation of the act of 1913 are most unsatisfactory because the groupings are made either by fiscal or calendar years and that act was not in effect through either a fiscal or a calendar year before the war produced abnormal conditions. There remain the statistics of the normal years before 1914 and those now accumulating of the last year, which cannot be reckoned as normal, but which serve to indicate tendencies and the direction in which industrial affairs are moving. Some of the most valuable information received as to conditions in foreign countries came from persons who have been abroad recently on business trips. Letters containing offers from foreign manufacturers have been submitted with price lists and advertising matter. Also original invoices of foreign made goods. From all the information received, it appears clearly and beyond question that as far as manufactures of metals are concerned the spread or differential between the labor cost of articles made here and abroad is much greater than before the war. This is so to a very marked degree in Germany and only less so in the other countries which compete with us in the metal industries. It is well known that before the war Germany had already become our most effective competitor in the manufacture of metals. With uninjured, and in many cases greatly improved, facilities for manufacturing, with abundant skilled labor at wages less than one-fourth, in many cases less than one-eighth, measured in gold, that of the corresponding American labor, the German faces his American competitor, now paying the highest wages ever paid in any country at any time, except in this country for a portion of last year. The answer to the problem outlined by such a condition furnishes abundant reasons for such increases in rates of duty as are proposed in this Title.

### Divided Into Three Classes

"For the purposes of determining proper rates of duty the articles contained in this Title may be roughly divided into three classes.

"The first class includes articles produced in large part by machinery, where the element of labor, though important, is relatively small as compared with the quantity and value of the product. This class includes iron and steel in the earlier stages of manufacture embracing the many forms of what are sometimes called the heavy or rolled product. Even for this class of products the increase of labor cost alone might justify an increase in rates of duty beyond what was ever before required, but rates have not been increased upon these articles. In many cases they have been substantially reduced below the rates in the Act of 1909 and in some cases below the Act of 1913.

"Formerly many articles of a higher stage of manufacture fell within this class because of the fact that in this country labor saving machines and appliances were used to a degree unknown in any other country. America was the land of 'jig made' goods. With proper machinery and an adequate equipment of tools, jigs, dies, gages and fixtures, one American workman could turn out several times the output of his brother workman abroad. Such advantages on our side in a large measure have ceased to exist and in many of the older industries have entirely ceased. With this change, such industries pass into the next class.

"The second class comprises articles produced in industries long established and thoroughly developed, wherein advantages by way of labor saving devices have ceased to exist, where the element of labor is relatively most important and where the difference in labor cost is the controlling factor in competition. The list of this class of industries is growing as the machines, the equipment and the methods of this country become the common property of all industrial countries.

"The third class consists of those articles the production of which was begun or largely developed during the war period and which have not yet reached the stage of competition upon even terms with those longer engaged in the industries in foreign countries. A number of these may be truly called 'infant industries.'

"*Surgical and Scientific Instruments.*—Among the new industries may be mentioned surgical, dental, philosophical and scientific instruments. Prior to the war we had been accustomed to import these articles largely from abroad. The making of them had not been satisfactorily developed in this country, which, when the war came to us, became a matter of genuine and serious regret, not to mention inconvenience and danger. Before the war ended we had made considerable progress in making these articles and it is proposed in this bill that so far as protective duties can properly assist, to insure the continuance of these industries here.

"*Scissors.*—Long before the war the making of steel laid shears had become an important industry in the United States, but the making of solid steel scissors had been almost entirely neglected, so that the war found us without a scissors industry. This was developed and built up during the war and it is believed that a fair rate of duty will enable it to continue.

"*Ferroalloys.*—The making of new kinds of steel by means of various metal alloys was greatly developed during the war as new and different uses were discovered. Some of these alloys had been used for a long time, but the use of all of them was greatly stimulated. The most important alloy metals used in making different kinds of steel are chrome, tungsten, vanadium, molybdenum and titanium. Other ferroalloys for the most part still in the experimental stage are ferrouranium, ferroboron, ferroaluminum, ferrozirconium and ferrocerium.

"Chrome and tungsten are used extensively in making high speed tool steel. Vanadium toughens the steel and renders it more resistant to shock and stress. Molybdenum gives it greater toughness and tensile strength. In fact, by the use of these alloys the making of steel has become a business much like that of the pharmacist who stands ready to compound his drugs according to the prescription. There are unlimited possibilities ahead of the ferroalloy industry.

"The addition of alloys in general makes the steel harder, tougher, or in some respect more difficult to work, requiring an increasing number of operations and additional labor, so that somewhat increased rates of duty are required for these products and articles made thereform.

**Mining Industries**

"During the war not only such old mining industries as lead, zinc and quicksilver underwent unusual development, but a considerable number of new industries were undertaken and to a considerable extent developed. Under Government stimulus, mining was encouraged to a very marked degree. Rare metals used as alloys for steel, such as chrome, tungsten, molybdenum and others were eagerly sought for. The mining of manganese ore was especially encouraged and reached a production of more than 40 per cent of the total domestic consumption in 1918. Many of these newer enterprises have suffered seriously since the close of the war. In some cases, such as tungsten, molybdenum and manganese, it is here attempted by protective duties to preserve the industries. Others, like chrome, also encouraged by the Government and now destined to lose what has been invested, unless recovered by the Government, the committee has deemed it unwise to attempt to save because the results of the war developments do not seem to warrant the belief that an economical industry can be built up in this country and if not, then the duty imposed would prove a useless burden upon the entire steel industry.

"In the metal title, as throughout the bill, specific rather than ad valorem duties have been imposed wherever practicable, first, because they are readily determined and also because they furnish greatest protection on a falling market when protection is most needed. In comparing the rate in the bill with that contained in any previous act, it should be borne in mind that by reason of the war, production costs have been generally increased, but nowhere so much as in the United States, which means that a specific rate now furnishes a less degree of protection than was furnished by the same specific rate when the value of the article was less. In view of the well grounded belief that it will be a long time before production costs in this country again approach normal, it has been found necessary in fixing rates to take the changed conditions into account."

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# Metal Schedule of the New Tariff Bill

## Items Now on the Free List Restored to the Dutiable List—Manganese Ore and Ferromanganese Duties Are Noteworthy

IN THE IRON AGE of June 30 were printed some paragraphs of the Metal Schedule of the new tariff bill as originally printed for presentation to the full Ways and Means Committee. Changes were made in some of these sections before the bill in its final form was given to the press. These changes were notably in pig iron and in the ferroalloy section.

Below is given the Metal Schedule in full, and inserted are the corresponding provisions of the present Underwood tariff and of the previous tariff, commonly known as the Payne-Aldrich tariff. The Underwood duties are given in parentheses ( ), while the Payne-Aldrich duties are given in brackets [ ]. It is to be expected that amendments will be made to the bill, both in the House and in the subsequent consideration of the measure by the Senate.

### Schedule 3.—Metals and Manufactures of

301. Iron in pigs, iron kentledge, spiegeleisen (all on free list) [all $2.50 per ton], wrought and cast scrap iron, and scrap steel, including scrap tin plate (all scrap on free list) [scrap, $1 per ton], *$1.25 per ton:* Provided, That nothing shall be deemed scrap iron or scrap steel except secondhand or waste or refuse iron or steel fit only to be remanufactured.

302. Manganese ore or concentrates containing in excess of 30 per cent of metallic manganese (free list), *1c. per lb.* on the metallic manganese contained therein; molybdenum ore or concentrates, *75c. per lb.* on the metallic molybdenum contained therein; tungsten ore or concentrates, *45c. per lb.* on the metallic tungsten contained therein; ferromanganese containing in excess of 1 per cent of carbon (free list) [$2.50 per ton], *2½c. per lb.* on the metallic manganese contained therein; manganese metal, manganese-silicon, manganese-boron, and ferromanganese containing less than 1 per cent of carbon (free list) [$2.50 per ton], *2½c. per lb.* on the manganese contained therein and *25 per cent* ad valorem; ferromolybdenum, metallic molybdenum, molybdenum pow-

der, calcium molybdate, and all other compounds and alloys of molybdenum, *$1.25 per lb.* on the molybdenum contained therein and *17 per cent* ad valorem; ferrotungsten, metallic tungsten, tungsten powder, tungstic acid, and all other compounds of tungsten, *72c. per lb.* on the tungsten contained therein and *15 per cent* ad valorem; ferrochromium tungsten, chromium tungsten, chromium cobalt tungsten, tungsten nickel, and all other alloys of tungsten not specially provided for, *72c. per lb.* on the tungsten contained therein and *17 per cent* ad valorem; ferrosilicon, containing 8 per cent or more of silicon and less than 30 per cent, *2½c. per lb.* on the silicon contained therein; containing 30 per cent or more of silicon and less than 60 per cent, *2¾c. per lb.* on the silicon contained therein; containing 60 per cent or more of silicon and less than 80 per cent, *3½c. per lb.* on the silicon contained therein; containing 80 per cent or more of silicon and less than 90 per cent, *4c. per lb.* on the silicon contained therein; containing 90 per cent or more of silicon, and silicon metal, *8c. per lb.* on the silicon contained therein; ferrochrome or ferrochromium containing 3 per cent or more of carbon, *3½c. per lb.* on the chromium contained therein; ferrochrome or ferrochromium containing less than 3 per cent of carbon, and chrome or chromium metal, *30 per cent* ad valorem; ferrophosphorus, ferrotitanium, ferrovanadium, ferrouranium, ferrocerium, zirconium ferrosilicon, ferroboron, titanium, zirconium, tantalum, chromium nickel, vanadium nickel, zirconium nickel, chromium vanadium, chromium silicon, zirconium silicon, calcium silicide, and all alloys used in the manufacture of steel not specially provided for, *30 per cent* ad valorem (ferroalloy paragraph carried 15 per cent) [ferroalloys, 20 to 25 per cent].

303. Muck bars and bar iron, square iron, rolled or hammered, comprising flats not less than one inch wide nor less than ⅜ in. thick, round iron not less than 7/16 in. in diameter, *¼c. per lb.*; round iron, in coils or rods, less than 7/16 in. in diameter, and bars and shapes of rolled or hammered iron, not specially provided for (5 per cent) [6/10c. per lb.], *5/10c. per lb.;* iron in slabs, blooms, loops, or other forms less finished than iron in bars, and more advanced than pig iron, except castings (5 per cent) [4/10c. per lb.], *2/10c. per lb.:* Provided, That all iron bars, blooms, billets, slabs or loops in the manufacture of which charcoal is used as fuel shall be subject to a duty of *3/10c. per lb.* (5 per cent) [3/10c. per lb.].

304. Steel ingots, cogged ingots, blooms and slabs, by whatever process made; die blocks or blanks; billets and bars and tapered or beveled bars; mill shafting; pressed, sheared, or stamped shapes, not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; alloys used as substitutes for steel in the manufacture of tools; all descriptions and shapes of dry sand, loam, or iron molded steel castings; sheets and plates and steel not specially provided for; all of the foregoing valued at not over 1c. per lb., *2/10c. per lb.* [7/40c. per lb. on value of ¾c. per lb. or less and ranging up to 4.6c. per lb. on value of 16c. to 24c.]; valued above 1c. and not above 1½c. per lb., *3/10c. per lb.;* valued above 1½c. and not above 2½c. per lb., *5/10c. per lb.;* valued above 2½c. and not above 3½c. per lb., *8/10c. per lb.;* valued above 3½c. and not above 5c. per lb., *1c. per lb.;* valued above 5c. and not above 8c. per lb., *1½c. per lb.;* valued above 8c. and not above 12c. per lb., *2c. per lb.;* valued above 12c. and not above 16c. per lb., *2½c. per lb.;* valued above 16c. and not above 20c. per lb., *3½c. per lb.;* valued above 20c. and not above 24c. per lb., *4c. per lb.;* valued above 24c. and not above 32c. per lb., *5c. per lb.* [6c. per lb.]; valued above 32c. and not above 40c. per lb., *6c. per lb.* [7c. per lb.]; valued above 40c. per lb., *20 per cent* [20 per cent] ad valorem: Provided, That on steel circular saw plates there shall be levied an additional duty of *¼c. per lb.* (Ingots, billets, etc., by Bessemer or open-hearth process, free list; electric, crucible and alloy ingots, &c., 15 per cent.)

305. In addition to the rates of duty provided for in this title on steel in all forms and shapes, by whatever process made, and by whatever name designated, whether cast, hot or cold rolled, forged, stamped, or drawn, containing more than 6/10 of 1 per cent of nickel, cobalt, vanadium, chromium, tungsten, molybdenum, or any other metallic element used in alloying steel, there shall be levied and collected *15 per cent* ad valorem: Provided, That manganese and silicon shall not be considered as alloying material unless present in the steel in excess of 1 per cent: Provided further, That an additional cumulative duty of *$1.25 per lb.* on the molybdenum content in excess of 1 per cent, and *72c. per lb.* on the tungsten content in excess of 1 per cent shall be levied and paid on any of the above-named articles.

306. All metal produced from iron or its ores, which is cast and malleable, of whatever description or form, without regard to the percentage of carbon contained therein, whether produced by cementation, or converted, cast, or made from iron or its ores, by the crucible, electric, Bessemer, Clapp-Griffith, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin, or open-hearth process, or by the equivalent of either, or by a combination of two or more of the processes, or their equivalents, or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable-iron castings, shall be classed and denominated as steel.

307. Boiler or other plate iron or steel, except crucible plate steel and saw plate steel, not thinner than 140/1000 in., cut or sheared to shape or otherwise, or unsheared, and skelp iron or steel sheared or rolled in grooves, valued at 1c. per lb. or less, *7/20c. per lb.* [from 3/10c. on 8/10c. value to 6/10c. on 3c. value]; valued above 1c. per lb. and not above 3c. per lb., *5/10c. per lb.;* valued at over 3c. per lb., *20 per cent* ad valorem [20 per cent]: Provided, That all sheets or plates of iron or steel thinner than 140/1000 in. [No. 10 wire gage] shall pay duty as iron or steel sheets (all plates 12 per cent).

308. Sheets of iron or steel, common or black, of whatever dimensions, and skelp iron or steel, valued at 3c. per lb. or less, thinner than 140/1000 and not thinner than 38/1000 in., *45/100c. per lb.;* thinner than 38/1000 and not thinner than 22/1000 in., *55/100c. per lb.;* thinner than 22/1000 and not thinner than 10/1000 in., *75/100c. per lb.;* thinner than 10/1000 in., *85/100c. per lb.;* corrugated or crimped, *75/100c. per lb.;* all the foregoing when valued at more than 3c. per lb., *20 per cent* ad valorem: Provided, That all sheets or plates of common or black iron or steel not thirner than 140/1000 in. shall pay duty as plate iron or plate steel (all black sheets, 12 per cent) [5/10c. on 3c. value, and less, and thinner than No. 10 wire gage, ranging up to 9/10c. on thinner than No. 32 gage; over 3c. value, 30 per cent].

309. All iron or steel sheets, plates, bars, and rods, and all hoop, band, or scroll iron or steel, excepting what are known commercially as tin plates, terne plates, and taggers tin, when galvanized or coated with zinc, spelter, or other metals, or any alloy of those metals, shall pay *2/10c. per lb.* more duty [same] than if the same was not so galvanized or coated; sheets or plates composed of iron, steel, copper, nickel, or other metal with layers of other metal or metals imposed thereon by forging, hammering, rolling, or welding, *28 per cent* ad valorem [40 per cent]; sheets and plates of iron or steel, polished, planished, or glanced, by whatever name designated, *1¼c. per lb.* [1½c]: Provided, That plates or sheets of iron or steel, by whatever name designated, other than polished, planished, or glanced, herein provided for, which have been pickled or cleaned by acid, or by any other material or process, or which are cold-rolled, smoothed only, not polished, shall pay *2/10c. per lb.* [same] more duty than the rates provided on corresponding thicknesses of common or black sheet iron or steel. (For all the above, 15 per cent ad valorem.)

310. Sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them, is a component part, by the dipping or any other process, and commercially known as tin plates, terne plates, and taggers tin, *1.1c. per lb.* [1.2c. per lb.].

311. No article not specially provided for which is wholly or partly manufactured from tin plate, terne plate, or the sheet, plate, hoop, band, or scroll iron or steel, or of which such tin plate, terne plate, sheet, plate, hoop, band, or scroll iron or steel shall be the material of chief value, shall pay a lower rate of duty than that imposed on the tin plate, terne plate, or sheet, plate, hoop, band, or scroll iron or steel from which it is made, or of which it shall be the component thereof of chief value.

312. Beams, girders, joists, angles, channels, car-truck channels, tees, columns and posts, or parts or sections of columns and posts, deck and bulb beams, and building forms, together with all other structural shapes of iron or steel, not assembled, manufactured, or advanced beyond hammering, rolling, or casting, *7/20c. per lb.* (10 per cent) [3/10c. to 4/10c. per lb.]; any of the foregoing if machined, drilled, punched, assembled, fitted, fabricated for use, or otherwise advanced beyond hammering, rolling, or casting, 25 *per cent* ad valorem (10 per cent) [45 per cent].

313. Hoop, band, and scroll iron or steel, not specially provided for, valued at 3c. per lb. or less, 8 in. or less in width, and thinner than ⅜ in. and not thinner than 140/1000 in., *25/100c. per lb.* (10 per cent) [3/10c. per lb.]; thinner than 140/1000, and not thinner than 38/1000 in., *35/100c. per* lb. (10 per cent) [4/10c. per lb.]; thinner than 38/1000 in., *55/100c. per lb.* (10 per cent) [6/10c. per lb.]: Provided, That barrel hoops of iron or steel, and hoop or band iron, or hoop or band steel, flared, splayed, or punched, with or without buckles or fastenings, shall pay no more duty than that imposed on the hoop or band iron or steel from which they are made, bands and strips of iron or steel, whether in long or short lengths, not specially provided for, *20 per cent* ad valorem (10 per cent) [35 per cent].

314. Hoop or band iron, and hoop or band steel, cut to

lengths, or wholly or partly manufactured into hoops or ties, coated or not coated with paint or any other preparation, with or without buckles or fastenings, for baling cotton or any other commodity, *¼c. per lb.* (free list) [3-10c. per lb.].

315. Wire rods: Rivet, screw, fence, and other iron or steel wire rods, whether round, oval, or square, or in any other shape, nail rods and flat rods up to 6 in. in width ready to be drawn or rolled into wire or strips, all the foregoing in coils or otherwise, valued at not over 4c. per lb., *3/10c. per lb.* (10 per cent) [3/10c. per lb.]; valued over 4c. per lb., *6/10c. per lb.* (10 per cent) [3/10c. per lb.]: Provided, That all round iron or steel rods smaller than 20/100 in. in diameter shall be classed and dutiable as wire: Provided further, That all iron or steel wire rods which have been tempered or treated in any manner or partly manufactured shall pay an additional duty of *¼c. per lb.* (10 per cent) [½c. per lb.]: Provided further, That on all iron or steel bars and rods of whatever shape or section which are cold rolled, cold drawn, cold hammered, or polished in any way in addition to the ordinary process of hot rolling or hammering, there shall be paid *⅛c. per lb.* [same] in addition to the rates provided on bars or rods of whatever section or shape which are hot rolled; and on all strips, plates, or sheets of iron or steel of whatever shape, other than polished, planished, or glanced sheet iron or sheet steel, which are cold hammered, blued, brightened, tempered, or polished by any process to such perfected surface finish or polish better than the grade of cold rolled, smoothed only, there shall be paid *2/10c. per lb.* (10 per cent) [4/10c. per lb.] in addition to the rates provided on plates, strips, or sheets of iron or steel of common or black finish of corresponding thickness or value.

316. Round iron or steel wire, not smaller than 95/1000 in. in diameter, *¾c. per lb;* smaller than 95/1000 and not smaller than 65/1000 of one inch in diameter, *1¼c. per lb.* (15 per cent) [1¼c. per lb.]; smaller than 65/1000 in. in diameter, *1½c. per lb.* (15 per cent) [1¾c. per lb.]: Provided, That all of the foregoing valued above 6c. per lb. shall pay a duty of *20 per cent* ad valorem; all wire composed of iron, steel, or other metal, not specially provided for, except gold, silver, or platinum; all flat wires and all steel in strips not thicker than ¼ in. and not exceeding 16 in. in width, whether in long or short lengths, in coils or otherwise, and whether rolled or drawn through dies or rolls, or otherwise produced, and all other wire not specially provided for, 20 *per cent* ad valorem (15 per cent) [35 per cent]: *Provided,* That all iron or steel wire coated by dipping, galvanizing, sherardizing, electrolytic or any other process with zinc, tin, or other metal, shall pay a duty of 2-10*c. per lb.* in addition to the rate imposed on the wire of which it is made [same]; telegraph, telephone, and other wires and cables composed of iron, steel, or other metal except gold, silver, or platinum, covered with or composed in part of cotton, jute, silk, enamel, lacquer, rubber, paper, compound, or other material, with or without metal covering, 30 *per cent* ad valorem (15 per cent) [40 per cent]; wire rope and wire strand, 30 *per cent* ad valorem (30 per cent) [maximum wire duty and 1c. per lb.]; spinning and twisting ring travelers, 30 *per cent* ad valorem; wire heddles and healds, 25*c. per thousand* and 30 *per cent* ad valorem. (30 per cent) [25c. and 40 per cent].

317. All galvanized wire not specially provided for, except gold, silver, or platinum, not larger than 20-100 and not smaller than 8-100 in. in diameter, of the kind commonly used for fencing purposes (free) [wire duty plus 2-10c. per lb.], galvanized wire fencing composed of wires not larger than 20-100 and not smaller than 8-100 in. in diameter; and all wire commonly used for baling hay or other commodities, *½c. per lb.* (free) [not less than 40 per cent].

318. Woven-wire cloth: Gauze, fabric, or screen, made of wire composed of steel, brass, copper, bronze, or any other metal or alloy, not specially provided for, with meshes not finer than thirty wires to the lineal inch in warp or filling, 20 *per cent* ad valorem; with meshes finer than 30 and not finer than 90 wires to the lineal inch in warp or filling, 30 *per cent* ad valorem; with meshes finer than ninety wires to the lineal inch in warp or filling, 40 *per cent* ad valorem. (15 per cent) [maximum wire duty plus 1 c. per lb.].

319. Iron or steel anchors and parts thereof [1c. per lb]; forgings of iron or steel, or of combined iron and steel, not machined, tooled, or otherwise advanced in condition by any process or operation subsequent to the forging process, not specially provided for, 25 *per cent* ad valorem (12 per cent) [30 per cent].

320. Electric storage batteries and parts thereof, storage battery plates and storage battery plate material, wholly or partly manufactured, all the foregoing not specially provided for, 30 *per cent* ad valorem. (20 per cent) [45 per cent].

321. Antifriction balls and rollers, metal balls and rollers commonly used in ball or roller bearings, metal ball or roller bearings, and parts thereof, whether finished or unfinished, for whatever use intended, 10*c. per lb.* and 35 *per cent* ad valorem. (35 per cent) [45 per cent].

322. Railway fishplates or splice bars, made of iron or steel, *¼c. per lb.* (10 per cent) [3-10c. per lb.]; all other railway bars made of iron or steel, and railway bars made in part of steel, T rails, and punched iron or steel flat rails, 7-40*c. per lb.* (free) [7-40c. per lb.].

323. Axles and parts thereof, axle bars, axle blanks, and forgings for axles, of iron or steel, without reference to the stage or state of manufacture, not specially provided for (10 per cent), valued at not more than 6c. per lb., 6-10*c. per lb.* [3-4c. per lb]: *Provided,* That when iron or steel axles are imported fitted in wheels, or parts of wheels, of iron or steel, they shall be dutiable at the same rate as the wheels in which they are fitted. (same) [same].

324. Wheels for railway purposes, and parts thereof, of iron or steel, and steel-tired wheels for railway purposes, wholly or partly finished, and iron or steel locomotive, car, or other railway tires and parts thereof, wholly or partly manufactured, 1*c. per lb.* (20 per cent) [1¼c. per lb.]: *Provided,* That when wheels for railway purposes, or parts thereof, of iron or steel, are imported with iron or steel axles fitted in them, the wheels and axles together shall be dutiable at the same rate as is provided for the wheels when imported separately.

325. Anvils of iron or steel, or of iron and steel combined, by whatever process made, or in whatever stage of manufacture, 1 5-8*c. per lb.* (15 per cent) [1 5-8c. per lb.].

326. Blacksmiths' hammers, tongs, and sledges, track tools, wedges, and crowbars, of iron or steel, 1⅜*c. per lb.* (10 per cent) [1⅜c. per lb.].

327. Cast-iron pipe of every description [¼c. per lb.], cast-iron andirons, plates, stove plates, sadirons, tailors' irons, hatters' irons, but not including electric irons, and castings and vessels wholly of cast iron [8-10c. per lb.], including all castings of iron or cast-iron plates which have been chiseled, drilled, machined, or otherwise advanced in condition by processes or operations subsequent to the casting process but not made up into articles, or parts thereof, or finished machine parts [2-10c. per lb. extra]; castings of malleable iron not specially provided for [7-10c. per lb.]; cast hollow ware, coated, glazed, or tinned [1½c. per lb.], but not including enameled ware or hollow ware containing electrical elements, 10 *per cent* ad valorem. (All the above, 10 per cent).

328. Lap-welded, butt-welded, seamed, or jointed iron or steel tubes, pipes, flues, and stays, not thinner than 65-1000 in., if not less than ⅜ in. in diameter, *¾c. per lb.;* if less than ⅜ and not less than ¼ in. in diameter, *1¼c. per lb;* if less than ¼ of an inch in diameter, *1¾c. per lb.* (all 20 per cent) [1c. to 2c.]; *Provided,* That no tubes, pipes, flues, or stays made of charcoal iron shall pay a less rate of duty than *1¼c. per lb.* [1½c.]; cylindrical and tubular tanks or vessels, for holding gas, liquids, or other material, whether full or empty; welded cylindrical furnaces, tubes and flues made from plate metal, whether corrugated, ribbed, or otherwise reinforced against collapsing pressure, and all other finished or unfinished iron or steel tubes not specially provided for, 20 *per cent* ad valorem [30 per cent]; flexible metal tubing or hose, whether covered with wire or other material, including any appliances or attachments affixed thereto, not specially provided for [30 per cent], and rigid iron or steel tubes or pipes prepared and lined or coated in any manner suitable for use as conduits for electrical conductors, 25 *per cent* ad valorem. (All 20 per cent).

329. Chain and chains of all kinds, made of iron or steel, not less than ¾ in. in diameter, 1*c. per lb.;* less than ¾ and not less than ⅜ in. in diameter, *1¼c. per lb.;* less than ⅜ and not less than 5-16 in. in diameter, *2½c. per lb;* less than 5-16. in. in diameter, *4c. per lb;* chain and chains of all kinds, of iron or steel, not specially provided for, 25 *per cent* ad valorem; sprocket and machine chains, of iron or steel, and parts thereof, 30 *per cent* ad valorem (25 per cent); anchor or stud link chain, two inches or more in diameter, *1½c. per lb.;* less than two inches in diameter, 2*c. per lb.* (all except sprocket and machine, 20 per cent) [chains, ⅞ to 3c. per lb., but not less than 45 per cent]: *Provided,* That all articles manufactured wholly or in chief value of chain shall not pay a lower rate of duty than that imposed upon the chain of which it is made, or of which chain is the component material of chief value.

330. Nuts, nut blanks, and washers, of wrought iron or steel, 6-10*c. per lb.* (5 per cent); bolts, with or without threads or nuts, and bolt blanks, of iron or steel, 1*c. per lb.* (10 per cent); spiral nut locks, and lock washers, of iron or steel, 30 *per cent* ad valorem. (30 per cent) [All 1⅛c. per lb.].

331. Cut nails and cut spikes, of iron or steel [4-10*c. per lb.*], exceeding 2 in. in length, 4-10*c. per lb.;* cut tacks and brads, hobnails and cut nails, of iron or steel, not exceeding 2 in. in length, 20 *per cent* ad valorem; horseshoe nails, and other iron or steel nails, not specially provided for, 2*c. per lb.*

[1½c. per lb.]; nails, spikes, tacks, brads, and staples, made of iron or steel wire, not less than 1 in. in length nor smaller than 65-1000 in. in diameter, 4-10*c. per lb.*; less than 1 in. in length and smaller than 65-1000 in. in diameter, ¾*c. per lb.* [⅝c. per 1000 to ¾c. per lb.]; spikes, tacks, brads, and staples, not specially provided for, 6-10*c. per lb.* (All on free list).

332. Rivets, studs, and steel points, lathed, machined, or brightened, and rivets or studs for nonskidding automobile tires, 25 *per cent* ad valorem (20 per cent) [45 per cent]; rivets of iron or steel, not specially provided for, 1*c. per lb.* (20 per cent) [1¼c. per lb.].

333. Horse, mule, or ox shoes of wrought iron or steel, 6-10*c. per lb.* (free) [¾c. per lb.].

334. Steel wool, 10*c. per lb.* (20 per cent) [40 per cent]; steel shavings, 5*c. per lb.* (20 per cent) [40 per cent]; and in addition thereto, on all of the foregoing, 30 *per cent* ad valorem: *Provided,* That in computing the duty the weight and value of the package shall be included and the net weight of the contents shall be plainly marked upon each package.

335. Grit, shot, and sand of iron or steel, in any form, 1*c. per lb.* (30 per cent) [1c. per lb.].

336. Corset clasps, corset steels, and dress steels, whether plain or covered with cotton, silk, or other material, 25 *per cent* ad valorem. (15 per cent) [35 per cent].

337. Card clothing not actually and permanently fitted to and attached to carding machines or to parts thereof at the time of importation, when manufactured with tempered or untempered round iron or steel wire, or with plated wire or other than round iron or steel wire, or with felt face, wool face, or rubber-face cloth containing wool, 35 *per cent* ad valorem. (10 to 35 per cent) [20 to 55c. per sq. ft.].

338. Screws, commonly called wood screws, of iron or steel, more than 2 in. in length, 10*c. per gross;* over 1 in. and not over 2 in. in length, 8*c. per gross;* over ½ in. and not over 1 in. in length, 5*c. per gross;* ½ in. and less in length, 3*c. per gross* (25 per cent) [3 to 10c. per lb.]; *Provided,* That each package or carton shall have conspicuously marked thereon the number of screws contained therein and the duty shall not be assessed upon a less number than so marked.

339. Table, household, kitchen, and hospital utensils, and similar hollow or flat ware, not specially provided for; composed of iron or steel and enameled or glazed with vitreous glasses, 5*c. per lb.* and 30 *per cent* ad valorem [40 per cent]; composed wholly or in chief value of aluminum, 28 *per cent* ad valorem (all above, 25 per cent); and in addition thereto, upon any of the foregoing articles containing electrical heating elements as constituent parts thereof, 10 *per cent* ad valorem.

340. Crosscut saws, mill saws, pit and drag saws, circular saws, steel band saws, finished or further advanced than tempered and polished, hand, back, and all other saws, not specially provided for, 15 *per cent* ad valorem (12 per cent) [5c. per ft. to 5c. per lb. and 20 per cent extra]; jewelers' or piercing saws, 40*c. per gross.* [25 per cent].

341. Steel plates, stereotype plates, electrotype plates, halftone plates, photogravure plates, photoengraved plates, and plates of other materials, engraved for printing, [20 per cent], and plates of iron or steel engraved or fashioned for use in the production of designs, patterns, or impressions on glass in the process of manufacturing plate or other glass, 15 *per cent* ad valorem (15 per cent) [25 per cent]; lithographic plates of stone or other material engraved, drawn, or prepared, 20 *per cent* ad valorem. (25 per cent) [50 per cent].

342. Umbrella and parasol ribs and stretchers, composed wholly or in chief value of iron, steel, or other metal, in frames or otherwise, and tubes for umbrellas, wholly or partly finished, 35 *per cent* ad valorem. (Same) [50 per cent].

343. Spring-beard needles, and other needles for knitting, sewing, shoe, or embroidery machines of every description, not specially provided for, and crochet needles, $1.15 *per* 1000 and 25 *per cent* ad valorem; latch needles, $2 *per* 1000 *and* 35 *per cent* ad valorem [above, $1 to $1.15 per 1000 and 25 to 35 per cent extra]; tape knitting, and all other needles, not specially provided for, bodkins of metal, and needle cases or needle books furnished with assortments of needles or combinations of needles and other articles [25 per cent], 30 *per cent* ad valorem. (All 20 per cent).

344. Fishhooks, fishing rods and reels, artificial flies, artificial baits, snelled hooks, leaders or casts, and all other fishing tackle and parts thereof, fly hooks, fly boxes, baskets or creels, finished or unfinished, not specially provided for, except fishing lines, fishing nets, and seines, 35 *per cent* ad valorem (30 per cent): *Provided,* That any prohibition of the importation of feathers in this act shall not be construed as applying to artificial flies used for fishing, or to feathers used for the manufacture of such flies.

345. Saddlery and harness hardware: Buckles, rings, snaps, bits, swivels, and all other articles of iron, steel, brass, composition, or other metal, commonly or commercially known as saddlery or harness hardware, 35 *per cent* ad valorem. (15 per cent).

346. Belt buckles, trouser buckles, and waistcoat buckles, shoe or slipper buckles, and parts thereof, made wholly or partly of iron or steel, valued at not more than 20c. per 100, 5*c. per* 100; valued at more than 20 and not more than 50c. per 100, 10*c. per* 100; valued at more than 50c. per 100, 15*c. per* 100; and in addition thereto, on all of the foregoing, 20 *per cent* ad valorem. (15 per cent).

347. Hooks and eyes, wholly or in chief value of metal, whether loose, carded, or otherwise, including weight of cards, cartons, and immediate wrappings and labels, 4½*c. per lb. and* 15 *per cent* ad valorem. (15 per cent).

348. Snap fasteners and clasps, and parts thereof, by whatever name known, or of whatever material composed, not plated with gold, silver, or platinum, and not mounted on tape, 40 *per cent* ad valorem; mounted on tape, 45 *per cent* ad valorem. (15 per cent).

349. Metal trouser buttons, except steel and nickel bar buttons, 1-12*c. per line per gross;* steel trouser buttons, ¼*c. per line per gross;* buttons of metal, not specially provided for, ¾*c. per line per gross;* and in addition thereto, on all of the foregoing, 10 *per cent* ad valorem; metal buttons embossed with a design, device, pattern, or lettering, 35 *per cent* ad valorem: *Provided,* That the term "line" as used in this paragraph shall mean the line button measure of 1-40 in.

350. Pins with solid heads, without ornamentation, including hair, safety, hat, bonnet, and shawl pins, and pins with heads of glass, paste, or fusible enamel, composed of brass, copper, iron, steel, or other base metal, not plated with gold or silver, and not commonly known as jewelry, 28 *per cent* ad valorem. (20 per cent) [35 per cent].

351. Pens, metallic, not specially provided for, 12*c. per gross* (8c.) [12c.]; with nib and barrel in one piece, 15*c. per gross.* (12c.) [15c.].

352. Penholder tips, penholders and parts thereof [5c. per gross and 25 per cent], gold pens [25 per cent], combination penholders comprising penholders, pencil, rubber eraser, automatic stamp, or other attachments, 25*c. per gross and* 20 *per cent* ad valorem [45 per cent]; mechanical pencils made of base metal and plated with gold, silver, or platinum, 45*c. per gross and* 20 *per cent* ad valorem (all 25 per cent): *Provided,* That pens and penholders shall be assessed for duty separately.

353. Fountain pens, fountain-pen holders, stylographic pens, and parts thereof (25 per cent) [30 per cent], valued at not more than $2 per dozen, 72*c. per dozen;* valued at more than $2 and not more than $6 per dozen, $1.50 *per dozen;* and in addition thereto, on all of the foregoing, 25 *per cent* ad valorem: *Provided,* That the value of cartons and fillers shall be included in the dutiable value.

354. Penknives, pocketknives, clasp knives, pruning knives, budding knives, erasers, manicure knives, and all knives by whatever name known, including such as are denominatively mentioned in this act, which have folding or other than fixed blades or attachments, valued at not more than 40c. per dozen, 40 *per cent* ad valorem; valued at more than 40c. and not more than 50c. per dozen, 1*c. each and* 30 *per cent* ad valorem; valued at more than 50c. and not more than $1.25 per dozen, 5*c. each and* 30 *per cent* ad valorem; valued at more than $1.25 and not more than $3 per dozen, 10*c. each and* 30 *per cent* ad valorem; valued at more than $3 and not more than $8 per dozen, 20*c. each and* 30 *per cent* ad valorem; valued at more than $8 per dozen, 30*c.* each and 30 *per cent* ad valorem; cuticle knives, corn knives, nail files, tweezers, hand forceps, and parts thereof, finished or unfinished, by whatever name known, 40 *per cent* ad valorem (35 to 55 per cent) [40 per cent and up to 20c. each, with 40 per cent extra]: *Provided,* That any of the foregoing, if imported in the condition of assembled, but not fully finished, shall be dutiable at not less than the rate of duty herein imposed upon fully finished articles of the same material and quality, but not less in any case than 15*c. each and* 35 *per cent* ad valorem: *Provided further,* That all the articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the shank or tang of at least one or, if practicable, each and every blade thereof.

355. Table, butchers', carving, cooks', hunting, kitchen, bread, cake, pie, slicing, cigar, butter, vegetable, fruit, cheese, canning, fish, carpenters' bench, curriers', drawing, farriers', fleshing, hay, sugar-beet, beet-topping, tanners', plumbers', painters', palette, artists', shoe and similar knives, forks, and steels, and cleavers, all the foregoing, finished or unfinished, not specially provided for, with or without handles of mother-of-pearl, shell, ivory, deer, or other animal horn, silver, nickel silver, or other metal than iron or steel, 16*c. each;* with handles of hard rubber, solid bone, celluloid, or any pyroxylin, casein, or similar material, 8*c. each;* with handles

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# THE IRON AGE

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## Soft Times and Other Times

It is desirable at intervals to review at long range our position and prospects, and in particular to note the verification or failure of predictions previously made. We may well ask at this time what has become of the prophecy made during the war that there would follow a period of from three to five years of activity and prosperity. Certainly there was a substantial foundation for such predictions. Six months or so ago the thought was in many minds that there was merely a short interruption, while certain readjustments would be made, whereupon the activity of 1920 would be resumed. That view is no longer held.

The war-time viewpoint, from which the predictions were made, was that men would be able and willing to work hard. That was taken practically as a matter of course. Hard work ought to be welcome as a change from making war. The prediction rested chiefly on the belief that the opportunity for hard work and advancement would be presented, and that part of the argument was sound.

What occurred after the war, however, was that nearly everyone, manufacturers, dealers and workmen, concluded that soft times had come, and they proceeded to take advantage of the soft times. There was indulgence rather than progress, a superficial activity rather than real prosperity.

It was a psychological phenomenon rather than a business or financial development. By reason of the mental attitude taken, that soft times had come, the period of activity was shortened. The cycle that with a normal mental attitude might have required from three to five years was run through its course in a shorter period. There is not an interruption to the period. It has simply come to its natural close.

Those who predicted a period of three, four or five years of activity also predicted that afterward there would be a period of recovery from the effects of the war. That is the period upon which we have entered and we shall delay the recovery if we do not recognize the fact. Such a period is sometimes called one of "hard times," but that viewpoint should be avoided, since the term suggests times that are abnormal, and no one can do his best work if he feels he is laboring under abnormal or unnatural conditions. It is a time for hard work and man is destined by nature for hard work. There is no acceptable system of religion or philosophy that teaches otherwise, none that shows that man is entitled to live in "soft times."

## The Proposed Metal Schedule

The new tariff bill as it has just left the hands of the Ways and Means Committee represents, in general, as was expected, a return to the protective character of the Payne-Aldrich act, the predecessor of the existing Underwood-Simmons act. In the comment made in these columns last week it was pointed out that in general iron and steel manufacturers had given little advice to the framers of the bill. The metal schedule as published in full on other pages indicates that the committee wrote most of its paragraphs with the definite idea of re-establishing the general lines of the Payne-Aldrich metal tariff of 1909. In some cases the actual rates in that act are restored and for the most part the departures from it are not marked. As was expected, the unscientific and loosely made ad valorem duties of the present metal schedule are supplanted by specific duties, and every iron and steel product the Underwood tariff put on the free list, save only barbed wire, is restored to the dutiable list. The committee, having decided to make an end of the farmer's free cotton ties, wire nails and wire for baling, left that one remnant of the Underwood committee's largess to the agricultural community.

The pig iron duty of $1.25 is neither protective nor a revenue maker. Apparently the low tariff members of the committee suggested halving the $2.50 duty of the Payne-Aldrich act which had a place in the bill as originally drafted. Similarly scrap might as well have been retained on the free list.

The ferroalloy section promises to be the storm center of the new bill. The duties on manganese ore and ferromanganese in particular will be points of attack. It might be assumed, in view of the fact that normally nearly all the ores used in the making of ferromanganese in this country



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are imported, that the imposition of a duty of 1c. per pound of metallic manganese in such ores was designed as a revenue tariff. But the subcommittee on the metal schedule, in its explanatory statement, says that the manganese ore duty, like that on tungsten and molybdenum ores, represents an attempt, by means of protective duties, to preserve domestic industries.

It need not be said that a radical departure is involved in imposing on a product long on the free list a duty equal to 100 per cent of the price at which that product sold—under exceptional conditions it is true—for a considerable time in 1914. At 2 1/5 cents per pound of manganese content, as proposed, the duty on a ton of 80 per cent ferromanganese would amount to $39.42, and it will be recalled that both the British producers and the United States Steel Corporation sold large lots in 1914 at $37 and $38, seaboard. So far as most independent steel manufacturers are concerned, the effect of the proposed duty will be to impose a tax of close to 27 cents per ton on their output, figuring 16 pounds of ferromanganese to the ton of steel. The Steel Corporation, in common with other producers of ferromanganese, would pay $11.20 duty per ton of 50 per cent manganese ore, but it has the advantage of the operation of its own Brazilian mines.

The issues involved in the proposed manganese duties promise to take precedence, so far as the steel industry is concerned, over all other features of the new metal schedule. The ability of British producers of ferromanganese, who have long supplied a considerable part of the ferromanganese consumed in the United States, to continue to do business here is one factor. The advisability of keeping in reserve for future emergency the limited supply of manganese ore in this country, instead of attempting its present development by the maintenance of a permanently high level price for ferromanganese, is another. The consumers of ferromanganese, it is already apparent, will exert themselves to secure radical reductions in the duties now carried in the bill.

## Exports and Domestic Consumption

The subject of refunding approximately ten billion dollars owed by foreign governments to the United States Government has just been placed squarely before Congress, which is asked to give the Secretary of the Treasury practically unrestricted power to act. Another important matter before Congress is the tariff.

We have heard a great deal of talk lately about "economics," though there may not have been much illumination, and the superficially bright observation has been made that while this subject originally was "political economy" and referred principally to the policies of nations as such, it has now become more "practical" and has become "a matter of vital interest to the individual."

Right here we are in danger of making a grievous blunder. Never before did the United States Government have greater need for a definite and intelligent system of political economy. This ten billion dollars admitted to be owing to us, and the question of the tariff, as well as some other pending matters, make the economic issue of the most vital importance.

Why do we export goods? Before the war we exported, as an annual average, merchandise worth about half a billion dollars more than the merchandise we imported. That was our "trade balance" and it was needed and used to cover freights paid to foreign vessel owners on our imports, interest and dividends on our securities held abroad, the expenses of American tourists, gifts of residents of this country to residents of foreign countries, and some other and smaller items.

Now, as everyone knows, most of these conditions are reversed. About 40 per cent of our water-borne commerce is now in American vessels, and as our exports, valued at the home port, exceed our imports, valued at the foreign port, it would look as though we were in line to receive as much in ocean freights as we pay out. We are in line to receive more interest and dividends than we pay. We practically "broke even," in the broad sense, before the war with half a billion more merchandise exports than imports, while in future we might break even with some excess of imports over exports.

If we have a balance to be settled in gold, securities or other evidence of value, not merchandise or service that we can use, will it be profitable to us as a nation? There is a law of trade that if such a matter is left to itself prices of commodities will so change that a country with an excess of merchandise exports not otherwise taken care of will have rising prices, tending to discourage exports and encourage imports. It would be foolish to leave the matter to adjustment according to that law, since if we want to export we want to continue to export indefinitely.

The argument that we cannot consume all we produce needs more analysis. It is a good thing to be able to produce a great deal, but it is not a good thing to be too poor to consume. Of course it might not be well for us to consume more wheat than we do or more canned milk or hops or musical instruments, in all of which we have had a considerable export trade; but it might possibly be well for us to use the labor involved in producing these surpluses in building houses or good roads or other things that involve actual advancement and increase our comfort.

What is here suggested would involve a redistribution of man power. There is a difficulty with respect to factory power. We may have typewriter factories in which much capital is tied up and which can supply us with all the typewriters we need and still have a large surplus. It would not be good practice to destroy that capital. But if a man can do as good work building roads as in raising wheat and we can use the good roads to advantage, but do not need the money that would be paid for the wheat, it is better for us to have the good roads than the money.

We should have, then, a national policy, a system of political economy, aimed directly at giving us what we really need and will be good for us. A policy of endeavoring to keep merchandise from coming into the country, to force merchandise out of the country, and to accumulate gold and securi-

ties, could be advantageous only by the slimmest kind of a chance.

## The Proportion of Union Workers

Statements have been made lately that between 80 and 90 per cent, or between 85 and 90 per cent, of the workers in the United States do not belong to labor unions. Friends of the labor union movement have sometimes claimed proportions of unionism up to 50 or 75 per cent. Here are wide discrepancies. Sometimes a discrepancy is produced by the friends of labor unions juggling the figures. For instance, some time ago a presentation was made, claiming to use "the latest figures," but these figures were on the one hand the 1910 census for the total number of persons "engaged in gainful occupations" and on the other hand the latest claim of the labor unions as to the number in their ranks. The population had increased since 1910 and the proportion of the population at work had increased.

A large part of the discrepancy arises from differences in classification as to who are "workers." The labor union advocates have a way of counting out those who work but who do not seem susceptible to unionization, though if any such workers should later be found susceptible they would be added to the union total. Those classed as "public servants" are excluded from the total with which the strength of unionism is compared, but this did not prevent the Boston policemen from being organized and going on strike.

The 1920 census has not yet reported on the number of persons engaged in gainful occupations. The figure as to total population is 105,708,771. The 1910 census was as follows:

| | |
|---|---|
| Total | 91,972,266 |
| Ten years and older | 71,580,270 |
| Ditto, engaged in gainful occupations | 38,167,336 |

Punctiliously counting up all classes that it might be considered proper to exclude, when considering the proportion of unionism, one cannot find more, at the outside, than about 12,600,000. The deductions include farmers, 5,865,003, farm laborers working at home, 3,310,534, persons in public service, 459,291, clergymen, 118,018, other professional men, newsboys and a great many others.

Allowing for the 15 per cent increase in population from 1910 to 1920, but not allowing for the proportion of workers having increased, the figures for 1920 would be 44,000,000 for all persons ten years and older engaged in gainful occupations and 29,300,000 for the number of workers left after the very free deductions referred to above.

As to the strength of unionism, the outside claim ever made was under 7,000,000, while even at that the strength of unionism has since declined. At the Denver convention the American Federation of Labor reported 3,906,528, against 4,078,740 in 1920. The figures are said to exclude men locked out, on strike or out of employment, since these do not pay dues. Even with these allowances there is reason to believe the figure is too high. Outside the American Federation of Labor are the four railroad brotherhoods, quite a number of miners in the West, and some small unions. The total number of union workers can hardly be taken at over 5,000,000 at the present time, and that is probably a liberal statement.

At 5,000,000 for unionism there is a proportion of 11 per cent for unionism of all those who work instead of depending upon investments or upon some one else for their keep. It is a proportion of 17 per cent of workers, excluding all who by any species of argument can be claimed as properly deductible. Thus a statement that between 80 and 90 per cent of the workers are nonunion provides a leeway that covers all points that could be brought into controversy.

# CORRESPONDENCE

## Efficient Journal Bearings

*To the Editor:* In your issue of June 16, you quote "from a monograph" on the above subject. The early part of the article improperly makes comparisons between babbitt bearings and ball and roller bearings. I use the word "improperly" advisedly, as the statements are made without qualification, from which it may be inferred that, in all cases, babbitt bearings are the inferior of ball or roller bearings.

Every engineer knows that there are many places where ball or roller bearings cannot be used; that in most of the world's machinery, babbitt is indispensable, and in fact, that some of the bearings in the machinery used to manufacture the very ball or roller bearings are babbitt-lined—we know this because we furnish babbitt for such machinery.

I do not wish to enter here upon a discussion as to the respective merits of babbitt bearings and ball or roller bearings. Each has its place where it is better adapted than the others. But so general a statement as "the annoyance of shut-downs to reline, adjust or replace plain bearings . . . more than compensates for any increase in first cost of application of the antifriction bearings," should not go unchallenged, for the plain reason that it is only fractionally true. It would be just as fractionally true for one to say that the use of a genuine babbitt "more than compensates for any increase in the cost of the application of bearings made from No. 4 Babbitt." Anybody familiar with bearings knows that there are many places where the ultimate cost of babbitted bearings is considerably less than that of ball or roller bearings.

More frequently than otherwise, the bearings in the connecting rod of an automobile outwears the car itself. Take the big bearings in a marine engine, brass as well as babbitt; the right babbitt will operate under heavy duty for years before relining of the bearings is found necessary.

Another assertion open to question is that "workmen will not give proper attention to the correct lubrication of plain bearings." Long experience has convinced us that bearing troubles caused by inattention to their lubrication are so rare, compared to the great number of babbitt bearings in use, as to be negligible. Few machines are in charge of an ordinary "workman." The lubrication of most machines is looked after by engineers and master-mechanics, who as a rule are men of intelligence, mechanically skilled and fully cognizant of the importance of keeping their bearings properly lubricated. But if, by chance, a bearing does burn out "at just the time when the mill is busy," how much time will it take to reline it, as compared to the replacing and installation of a roller-bearing that has broken, an accident by no means rare? And bear in mind, that while the mill always has babbitt on hand, it does not often have extra rollers on hand, but

## Features of the Metal Schedule of the Proposed Tariff Bill, with Comparisons

| | NEW BILL | PRESENT TARIFF | PAYNE-ALDRICH TARIFF |
|---|---|---|---|
| Iron ore | Free | Free | 15c. per ton |
| Pig iron | $1.25 | Free | $2.50 |
| Spiegeleisen | $1.25 | Free | $2.50 |
| Scrap | $1.25 | Free | $1.00 |
| *Manganese ore | 1c. per lb. Mn. content | Free | Free |
| †Ferromanganese | 2 1/5c. per lb. Mn. content. | Free | $2.50 per ton |
| Steel billets | 2-10c. to 6c. per lb. | Bess. and O.H. free. | 7-40c. to 7c. per lb. |
| Bar iron | ¼c. to ½c. per lb. | 5 per cent. | 3-10c. per lb. |
| Beams, etc., plain | 7-20c. per lb. | 10 per cent. | 3-10 to 4-10c. per lb. |
| Plates | 7-20c. to 5-10c. per lb. | 12 per cent. | 7-20 to 5-10c. per lb. |
| Wire rods | 3-10c. per lb. | 10 per cent. | 3-10c. per lb. |
| Galv. wire for fencing | ½c. per lb. | Free | Wire duty plus 2-10c. per lb. |
| Axles | 6-10c. per lb. | 10 per cent. | 3-4c. per lb. |
| Rails | 7-40c. per lb. | Free | 7-40c. per lb. |
| Cast-iron pipe | 10 per cent. | 10 per cent. | 1-4c. per lb. |
| Cut nails and spikes | 4-10c. per lb. | Free | 4-10c. per lb. |
| Barbed wire | Free | Free | 3-4c. per lb. |
| Machine tools | 35 per cent. | 15 per cent. | 30 per cent. |
| Chain | 1c. to 4c. per lb. | 20 per cent. | 7-8c. to 3c. per lb. |
| Aluminum ingots | 5c. per lb. | 2c. per lb. | 7c. per lb. |
| Tin, pig | 2c. per lb. | Free | Free |
| Nickel, ingots | 5c. per lb. | 10 per cent. | 6c. per lb. |
| Fluorspar | $5 per ton. | $1.50 per ton. | Free |
| Magnesite | ½c. to ¾c. per lb. | | |

*Above 30 per cent Mn.
†Above 1 per cent carbon.

must lose days before their arrival from the makers.

The most absurd assertion of the article is that "a properly designed ball or roller bearing . . . will operate 50 times longer than a plain bronze or babbitt bearing under the same conditions." It would be just as logical to recommend a genuine babbitt that costs 40c. per lb. for a car axle bearing, instead of a lead-based babbitt that costs 15c. per lb., because the genuine babbitt will operate "at least fifty times longer." We have records of babbitted bearings in engines, lumber gangs, centrifugals and many other machines where the bearings operated under severe conditions and did not require relining for 3 years. Who in the world would want to pay so much more for the initial cost in order that the bearings in his engine-lumber-gangs, centrifugals or other machines, may still be in service for his great-great-grandchildren 150 years hence?

There is no question that ball and roller bearings have done wonderful work in advancing the progress of machinery. But they have not as yet reached that point where they can displace babbitt bearings except in comparatively few places. We have the highest regard for ball bearings and roller bearings and use them in certain of our machinery, just as some of our friends in the ball and roller bearing industries use babbitt in certain of their machinery.

A. HOYT LEVY,
Secretary United American Metals Corporation.
Brooklyn, N. Y., June 20.

### The Proposed Metal Schedule

*To the Editor:* The tariff bill just proposed by the Ways and Means Committee is the most unreasonable accumulation of greed ever submitted to any American Congress. Surely it does not represent an attempt to reduce the cost of living or to stabilize industry, and therefore deserves and will receive a storm of condemnation that will not need an amplifier to be heard in Washington.

The metal rates with few exceptions are absolutely prohibitive, and this Chinese wall would be a joke as a revenue producer, but it will not be a joke to the American consumer who is waiting for a reduction in his expense account.

Wake up, consumer, before it is too late, and send your protest to Washington.

C. W. LEAVITT & CO.
New York, June 30, 1921.

### Danish Competition as Well as German

*To the Editor.*—I was interested in reading the reprint of J. R. Bates' letter in the June 23 issue of your journal with regard to competition encountered in the crane business from German manufacturers, but as you are undoubtedly aware it is not from Germany alone that very excellent machinery can be obtained cheaper than at prevailing prices here.

For instance we can land Diesel engines, made in Denmark by probably the best known builder in the world, on cars at New York after paying for ocean boxing, freight, insurance and 20 per cent duty at figures below those quoted for American-built engines of equivalent powers and speeds.

The margin for duty alone is a handsome profit on heavy machinery of this class, hence it is easy to understand the difficulties United States manufacturers face in attempting to compete abroad under present conditions of labor and other costs here and the exchange situation.

H. L. DEAN,
President Dean Machinery Corporation.
New York, June 28.

### The Iron Age and Its Readers

Perhaps no department of THE IRON AGE is read with more interest than the personal section. It is a department, not only for its readers, but by its readers. In the last four weeks 78 personal paragraphs were published; 23 of these —or nearly one-third—were contributed by readers themselves. These tangible evidences of reader interest seldom bear any marks of desire for self advertisement but instead are expressions of an impulse to serve fellow readers as the individuals have been served by others.

# NEW LOW IN IRON OUTPUT

## June Production 3900 Tons Per Day Less Than in May

### Net Loss of 14 Furnaces—Ferromanganese Output Lowest on Record

After standing practically stationary during April and May the blast furnace output of the country again registered a rapid decline in June and made a new low record for the year and for several years. It is necessary to go back to January, 1908, to find a month's output which parallels that of June, this year. In January, 1908, the country's total output was 1,045,250 gross tons or 33,918 tons per day as compared with 1,064,833 tons or 35,494 tons per day last month. This is a decline from May of 156,388 tons or 3900 tons per day. The net loss in furnaces blown out or banked in June is 14 as compared with six in both April and May respectively. The net loss in the last nine months is 243 furnaces.

The production of coke and anthracite furnaces in June, a 30-day month, amounted to 1,064,833 gross tons, or 35,494 tons per day as compared with 1,221,221 tons, or 39,394 tons per day in May, a 31-day month, and with 1,193,041 tons or an average of 39,768 tons per day in April, a 30-day month. In June, 1920, the total output was 3,043,540 tons or 101,451 tons per day. The total furnaces in blast on July 1 was 76 compared with 90 on June 1, with 96 on May 1, with 102 on April 1 and with 201 on January 1. The 76 furnaces in blast July 1 had a capacity of 32,195 tons per day as compared with 38,080 tons per day for the 90 in blast on June 1 last. There were 16 furnaces blown out or banked and only two blown in during June.

A feature of the June output was the further sharp decline in the production of manganese-iron alloys. In June no spiegeleisen was produced and the output of ferromanganese was only 4536 tons. This compares with 6853 tons of ferromanganese in May besides an output of 2379 tons of spiegeleisen in that month. The decline is emphasized when it is remembered that in April 9566 tons of ferromanganese and 14,744 tons of spiegeleisen were produced. The lowest month previous to this was in January, 1904, when the combined output of manganese-iron alloys was 6673 tons.

#### Daily Rate of Production

The daily rate of production of coke and anthracite pig iron by months, from June, 1920, is as follows:

*Daily Rate of Pig Iron Production by Months—Gross Tons*

| 1920 | Steel Works | Merchant | Total |
|---|---|---|---|
| June | 73,659 | 27,792 | 101,451 |
| July | 71,954 | 26,983 | 98,937 |
| August | 72,740 | 28,789 | 101,529 |
| September | 74,908 | 29,402 | 104,310 |
| October | 77,214 | 28,998 | 106,212 |
| November | 71,669 | 26,161 | 97,830 |
| December | 66,037 | 20,185 | 87,222 |
| January, 1921 | 62,327 | 15,618 | 77,945 |
| February | 58,060 | 11,127 | 69,187 |
| March | 42,691 | 8,777 | 51,468 |
| April | 33,854 | 5,914 | 39,768 |
| May | 33,054 | 6,340 | 39,394 |
| June | 29,444 | 6,050 | 35,494 |

The figures for daily average production, beginning with January, 1915, are as follows:

*Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1915—Gross Tons*

| | 1915 | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 |
|---|---|---|---|---|---|---|---|
| Jan. | 51,659 | 102,746 | 101,643 | 77,799 | 106,525 | 97,264 | 77,945 |
| Feb. | 59,813 | 106,456 | 94,473 | 82,835 | 105,006 | 102,720 | 69,187 |
| Mar. | 66,575 | 107,667 | 104,882 | 103,648 | 99,685 | 108,900 | 51,468 |
| Apr. | 70,550 | 107,592 | 111,165 | 109,607 | 82,607 | 91,327 | 39,768 |
| May | 73,015 | 108,422 | 110,238 | 111,175 | 68,002 | 96,312 | 39,394 |
| June | 79,361 | 107,053 | 109,002 | 110,793 | 70,495 | 101,451 | 35,494 |
| July | 82,691 | 104,017 | 107,820 | 110,354 | 78,340 | 98,931 | ..... |
| Aug. | 89,666 | 103,346 | 104,772 | 109,341 | 88,496 | 101,529 | ..... |
| Sept. | 95,085 | 106,745 | 104,465 | 113,942 | 82,932 | 104,310 | ..... |
| Oct. | 100,822 | 113,189 | 106,550 | 112,482 | 60,115 | 106,212 | ..... |
| Nov. | 101,244 | 110,394 | 106,859 | 111,802 | 79,745 | 97,830 | ..... |
| Dec. | 103,333 | 102,537 | 92,997 | 110,762 | 84,944 | 87,222 | ..... |

#### Production of Steel Companies—Gross Tons

Returns from all furnaces of the United States Steel Corporation and the various independent steel companies, as well as from merchant furnaces producing ferromanganese and spiegeleisen, show the following totals of steel making iron, month by month, together with ferromanganese and spiegeleisen. These last, while stated separately, are also included in the columns of "total production."

*Production of Coke and Anthracite Pig Iron in the United States by Months, Beginning Jan. 1, 1917—Gross Tons*

| | 1917 | 1918 | 1919 | 1920 | 1921 |
|---|---|---|---|---|---|
| Jan. | 3,150,938 | 2,411,768 | 3,302,260 | 3,015,181 | 2,416,292 |
| Feb. | 2,645,247 | 2,319,299 | 2,940,168 | 2,978,879 | 1,937,257 |
| Mar. | 3,251,352 | 3,213,091 | 3,090,243 | 3,375,907 | 1,595,522 |
| Apr. | 3,334,960 | 3,288,211 | 2,478,218 | 2,739,797 | 1,193,041 |
| May | 3,417,340 | 3,446,412 | 2,108,056 | 2,985,682 | 1,221,221 |
| June | 3,270,055 | 3,323,791 | 2,114,863 | 3,043,540 | 1,064,833 |
| Half yr. | 19,069,892 | 18,002,572 | 16,033,808 | 18,138,986 | 9,428,166 |
| July | 3,342,438 | 3,420,988 | 2,428,541 | 3,067,043 | ..... |
| Aug. | 3,247,947 | 3,389,585 | 2,743,388 | 3,147,402 | ..... |
| Sept. | 3,133,954 | 3,418,270 | 2,487,965 | 3,129,323 | ..... |
| Oct. | 3,303,038 | 3,486,941 | 1,863,558 | 3,292,597 | ..... |
| Nov. | 3,205,794 | 3,354,074 | 2,392,350 | 2,934,908 | ..... |
| Dec. | 2,882,918 | 3,433,617 | 2,633,268 | 2,703,855 | ..... |
| Total yr.* | 38,185,981 | 38,506,047 | 30,582,878 | 36,414,114 | ..... |

*These totals do not include charcoal pig iron. The 1919 production of this iron was 327,097 tons.

#### Diagram of Pig Iron Production and Prices

The fluctuations in pig iron production from 1913 to the present time are shown in the accompanying chart. The figures represented by the heavy line are those of daily average production by months of coke and anthracite iron. The dotted curve on the chart represents monthly average prices of Southern No. 2 foundry pig iron at Cincinnati, local No. 2 foundry iron at furnace at Chicago, and No. 2X at Philadelphia. They are based on the weekly quotations of THE IRON AGE.

*Production of Steel Companies—Gross Tons*

| | Total Production | | | Spiegeleisen and Ferromanganese | | |
|---|---|---|---|---|---|---|
| | 1919 | 1920 | 1921 | 1919 | 1920 | 1921 |
| Jan. | 2,430,022 | 2,232,455 | 1,932,159 | 32,787 | 23,957 | 22,228 |
| Feb. | 2,209,470 | 2,181,679 | 1,625,695 | 28,105 | 28,038 | 29,013 |
| Mar. | 2,277,507 | 2,480,668 | 1,323,443 | 26,644 | 35,275 | 41,294 |
| Apr. | 1,838,677 | 1,968,542 | 1,015,621 | 17,308 | 27,628 | 24,310 |
| May | 1,586,805 | 1,128,720 | 1,024,678 | 14,604 | 33,407 | 9,232 |
| June | 1,655,944 | 2,209,770 | 883,312 | 14,254 | 34,751 | 4,536 |
| July | 1,906,604 | 2,230,567 | ..... | 14,805 | 36,789 | ..... |
| Aug. | 2,108,566 | 2,254,943 | ..... | 17,419 | 36,985 | ..... |
| Sept. | 1,828,613 | 2,247,250 | ..... | 20,631 | 39,546 | ..... |
| Oct. | 1,295,690 | 2,393,644 | ..... | 20,238 | 34,786 | ..... |
| Nov. | 1,727,656 | 2,150,075 | ..... | 19,964 | 26,944 | ..... |
| Dec. | 1,916,249 | 2,047,167 | ..... | 15,718 | 28,023 | ..... |

#### Capacities in Blast July 1

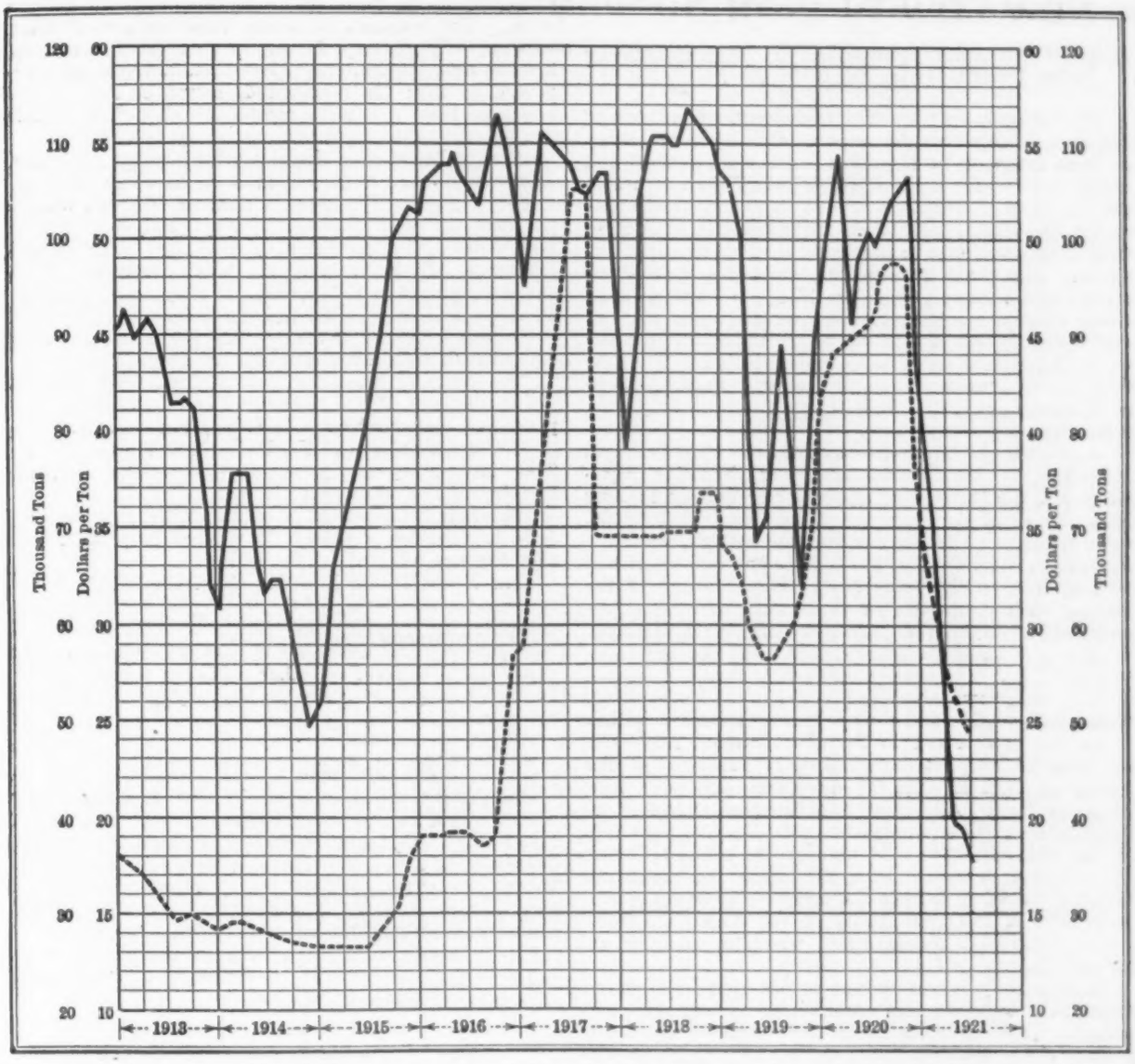
The following table shows the number of furnaces in blast July 1 in the different districts and their capacity, also the number and daily capacity in gross tons of furnaces in blast June 1:

*Coke and Anthracite Furnaces in Blast*

| Location of Furnaces | Total Stacks | July 1—In Blast | July 1—Capacity per Day | June 1—In Blast | June 1—Capacity per Day |
|---|---|---|---|---|---|
| *New York:* | | | | | |
| Buffalo | 22 | 3 | 1,140 | 3 | 1,200 |
| Other New York | 4 | 0 | ... | 0 | ... |
| New Jersey | 4 | 1 | 175 | 2 | 330 |
| *Pennsylvania:* | | | | | |
| Lehigh Valley | 18 | 2 | 900 | 3 | 1,125 |
| Spiegel | 2 | 0 | ... | 0 | ... |
| Schuylkill Valley | 15 | 2 | 705 | 2 | 785 |
| Lower Susquehanna | 10 | 1 | 380 | 2 | 790 |
| Ferro | 0 | 0 | ... | 0 | ... |
| Lebanon Valley | 8 | 1 | 135 | 0 | ... |
| Ferro | 2 | 0 | ... | 1 | 65 |
| Pittsburgh District | 55 | 16 | 7,550 | 18 | 8,700 |
| Ferro and spiegel. | 4 | 1 | 110 | 1 | 110 |
| Shenango Valley | 19 | 0 | ... | 2 | 900 |
| Western Penn. | 26 | 6 | 2,100 | 6 | 2,000 |
| Ferro and spiegel. | 0 | 0 | ... | 0 | ... |
| Maryland | 6 | 1 | 335 | 1 | 450 |
| Wheeling District | 15 | 1 | 600 | 1 | 580 |
| *Ohio:* | | | | | |
| Mahoning Valley | 27 | 6 | 3,000 | 5 | 2,400 |
| Central and Northern | 26 | 6 | 3,220 | 8 | 4,140 |
| Southern | 16 | 2 | 200 | 4 | 1,010 |
| Illinois and Indiana | 42 | 13 | 7,000 | 15 | 8,100 |
| Mich., Wis. and Minn. | 11 | 2 | 850 | 3 | 1,335 |
| Colorado and Missouri | 6 | 2 | 740 | 2 | 760 |
| *The South:* | | | | | |
| Virginia | 16 | 2 | 175 | 2 | 175 |
| Kentucky | 7 | 0 | ... | 0 | ... |
| Alabama | 41 | 8 | 2,880 | 9 | 3,125 |
| Tenn., Ga. and Texas | 16 | 0 | ... | 0 | ... |
| Total | 418 | 76 | 32,195 | 90 | 38,080 |

#### Output by Districts

The accompanying table gives the production of all coke and anthracite furnaces for June, and the three months preceding:




The Full Line Represents the Daily Production of Pig Iron and the Dotted Line Is the Average of the Price Per Ton of No. 2 Southern Pig Iron at Cincinnati, Local No. 2 Iron at Chicago and No. 2X Iron at Philadelphia

*Pig Iron Production by Districts, Gross Tons*

| | June (30 days) | May (31 days) | April (30 days) | March (31 days) |
|---|---|---|---|---|
| New York | 34,241 | 37,202 | 41,223 | 82,559 |
| New Jersey | 6,051 | 10,291 | 9,875 | 9,307 |
| Lehigh Valley | 29,929 | 42,289 | 45,329 | 48,256 |
| Schuylkill Valley | 21,172 | 24,471 | 21,279 | 28,631 |
| Lower Susquehanna and Lebanon Valleys | 25,809 | 26,491 | 24,799 | 24,521 |
| Pittsburgh district | 243,025 | 281,391 | 304,308 | 387,966 |
| Shenango Valley | 12,077 | 27,981 | 30,763 | 52,516 |
| Western Penna. | 63,802 | 73,661 | 70,930 | 83,350 |
| Maryland, Virginia and Kentucky | 15,289 | 20,781 | 17,575 | 22,069 |
| Wheeling district | 18,207 | 17,981 | 1,991 | 54,573 |
| Mahoning Valley | 88,515 | 87,090 | 102,826 | 132,482 |
| Central and Northern Ohio | 116,003 | 133,801 | 107,747 | 137,925 |
| Southern Ohio | 25,798 | 29,103 | 11,843 | 4,547 |
| Illinois and Indiana | 214,834 | 249,671 | 239,585 | 344,675 |
| Mich., Minn., Mo., Wis., Colo. and Wash. | 56,857 | 65,004 | 68,058 | 80,539 |
| Alabama | 93,224 | 94,013 | 94,910 | 101,484 |
| Tennessee | none | none | none | 122 |
| Total | 1,064,833 | 1,221,221 | 1,193,041 | 1,595,522 |

**Only two furnaces were blown in during June, and they were as follows:**

A furnace of the Bethlehem Steel Co. in the Lebanon Valley and Grace furnace of the Brier Hill Steel Co. in the Mahoning Valley.

**Among the furnaces blown out or banked during June were the following:**

The Musconetcong furnace in New Jersey; B furnace of the Bethlehem Steel Co. in the Lehigh Valley; B furnace of the Bethlehem Steel Co. in the Lower Susquehanna Valley and B furnace of the same company in the Lebanon Valley, making ferromanganese; G furnace of the Carnegie Steel Co. and the second Monongahela furnace of the National Tube Co. in the Pittsburgh district; Nos. 2 and 4 New Castle furnaces of the Carnegie Steel Co. in the Shenango Valley; Dover furnace and the second River furnace in the Central and Northern Ohio district; the Belfont and Portsmount furnaces in southern Ohio; the second Federal furnace and one Joliet furnace of the Illinois Steel Co. in the Chicago district; the second furnace of the Minnesota Steel Co. in Minnesota and the second North Birmingham furnace of the Sloss-Sheffield Steel & Iron Co. in Alabama.

## Canadian Imports for Twelve Months

**During the twelve months ended May 31, Canada reports imports from the United States goods amounting to $812,531,821 and exports to the United States goods amounting to $525,164,405. Materials of iron and steel and of nonferrous metals moved as follows:**

| | Iron and Steel | Non-ferrous |
|---|---|---|
| From Canada to United States | $16,577,593 | $27,359,422 |
| From United States to Canada | 16,297,882 | 6,055,775 |

**Former employees of the Mullins Body Corporation at Salem, Ohio, have voted to return to work at reduced wages following a strike which lasted 16 weeks.**

# MANY IDLE PLANTS

## Greatly Reduced Production in Manufacturing Centers

PITTSBURGH, July 4.—The mid-summer shutdown of iron and steel plants for repairs and other necessary work on equipment this year is much more general and promises to be for a much longer period than before in several years. Demands are so few and small that nearly all steel manufacturers will be able to meet them from stocks which have been built up over the past few weeks. The plant suspensions, therefore, instead of being for a definite period, are likely to continue until either there are sufficient orders on the books to warrant a resumption or mill stocks are reduced to a point where it is considered wise to replenish them. The outlook is that iron and steel producing capacity will be more poorly engaged during the first half of July than it has been for many years.

July starts off with only 19 of the 139 blast furnaces in the territory bounded by Johnstown, Wheeling, Pittsburgh and the Mahoning and Shenango Valleys, making iron. Seven of the furnaces of the Carnegie Steel Co. were banked on June 30, for over the holiday, while the Pittsburgh Steel Co. also banked the one furnace it had making iron on the same date. The standing of the leading steel companies in the matter of active furnaces is 7 of 57 for the Carnegie Steel Co.; 2 of 12 for the Jones & Laughlin Steel Co.; 2 of 11 for the Cambria Steel Co.; 1 of 8 for the Republic Iron & Steel Co. in the Youngstown district; 2 of 6 for the Youngstown Sheet & Tube Co., and 2 of 6 furnaces located within the territory referred to for the National Tube Co. All four of the Pittsburgh district furnaces of the American Steel & Wire Co. are down, and have been for some time. All six of the furnaces embraced in the Wheeling Steel Corporation now are idle, the stack of the Whitaker-Glessner Co., at Portsmouth, Ohio, having gone down on June 25. Only one merchant furnace is making iron in the territory mentioned, this being one of the two stacks of the American Manganese Mfg. Co., Dunbar, Pa., which is running on foundry iron.

Among the various classes of finishing mills those turning out tubular goods are making the best showing, and even these mills are not as well engaged this week as they were recently, due to the fact that jobbers are doing a good deal of trading between themselves and thus keeping back orders from the mills. Besides, the demand for oil country pipe is extremely light because so many of the big producers are reclaiming and repairing old pipe. Although the Steel Corporation has been getting some bar business from some of the automobile companies, and a few demands for plates and small shapes are developing as a result of the railroad repair orders recently placed, it cannot be said that operations of bar, plate and shape mills reflect these developments. Operations of the sheet and tin plate mills have rarely been so low as at present. Union mills generally have suspended because of the failure of an agreement on a wage scale, also because demands are so low that the manufacturers are satisfied that they can meet such demands as develop in the immediate future from stocks. Leading independent makers here of wire have shut down their plants.

### Plant Operations

The steel works of the National Enameling & Stamping Co. at Granite City, Ill., closed down on July 1, with the exception of the finishing department which will run until July 15. Hayward Niedringhaus, plant manager, said that the company had a fairly large stock on hand. The plant likely will remain closed for several months. The stamping works at Granite City also is virtually closed down.

The entire plant of the Minnesota Steel Co., Duluth, Minn., is idle with the exception of 38 coke ovens, the remaining active blast furnaces and open hearths having been put out last week.

Reports from 476 members of the National Metal Trades Association for the months of March, April and May, indicated that 227, or almost 50 per cent of those reporting, were operating 50 hours or more a week. The majority of these, however, are working with greatly reduced forces as compared with six months ago. Operations of less than 50 hours were reported by 249; 116 reported 40 hours, or less; 36, 30 hours or less; five were completely shut down, while five, on the other hand, are operating two shifts.

For 45 Milwaukee metal working shops reporting, 12,404 men were employed in May, as compared with 13,061 in April. The average number of hours worked per man per week was 41.1 in April and 40.6 in May. Comparison with conditions a year ago is much less favorable. In May, 1920, the total employees in 36 shops amounted to 19,169, while in May, 1921, the same 36 shops had only 11,954 men on their pay rolls. The average number of hours worked per man per week was 52.5 in May, 1920, and 40.6 in May, 1921.

The plant at St. Johns, Mich., of the Hayes Wheel Co. of Jackson, Mich., reopened Tuesday, July 5. The plant had been closed for inventory and repairs.

The machine shop of the Union Iron Works, Springfield, Mo., is operating on two-thirds time and the foundry two or three days a week.

The Erie Railroad shops at Meadville, Pa., resumed July 1, after being closed down since May 3. About 600 men are affected by the order.

The Pennsylvania Railroad Co., Philadelphia, is arranging for the closing of its repair shops at Chambersburg, Pa., transferring the work now being handled at this point on its Cumberland Valley Division to the shops at Altoona and other outlying repair plants. The local shops have been giving employment to about 350 men.

### Massachusetts Plants Close

Indications are a number of New England plants will be closed two or three weeks or longer this month. The Goodell-Pratt and various Greenfield Tap & Die Corporation, Greenfield, Mass., plants, as well as the Millers Falls Co., Millers Falls, Mass., plant closed July 1 until Aug. 1. The first and last named companies manufacture small tools. Other producers of small tools are feeling the business depression, especially those located in Rhode Island, and will operate on a reduced schedule this month.

### Army and Navy Award Contracts

WASHINGTON, July 5.—Awards were made last week by the War Department for supplying material for and fabricating 76 airplant hangars, of which 60 are small ones. The contract for the latter went to the Fort Bridge Works, Pittsburgh, at $204,000, f.o.b. Pittsburgh, while that for 16 hangars of the larger size went to the Belmont Iron Works, Philadelphia, at $271,000, f.o.b. New York. The latter company also was awarded a contract for hangar spare parts at $103,343, f.o.b. manufacturer's plant. In all, the steel involves approximately 3500 tons.

The Bureau of Supplies and Accounts, Navy Department, has awarded a contract to the Duquesne Steel Foundry Co., Pittsburgh, for 276 net tons of steel castings for the Philadelphia Navy Yard, at $28,704, delivered.

The following bids have been received by the Bureau: 60 net tons of nickel steel, for the Naval Ordnance plant, South Charleston, W. Va.; Carnegie Steel Co., Pittsburgh, 0.0426c. per lb.; Crucible Steel Co. of America, Pittsburgh, 0.044c. per lb., and Cambria Steel Co., Johnstown, Pa., 0.045c. per lb., all on a delivered basis; 70 net tons of rivet stock for the Mare Island, Cal., Navy Yard, $3.082 f.o.b. producers' plants, submitted by all bidders, including the Jones & Laughlin Steel Co., the Carnegie Steel Co., the Crucible Steel Co. of America, Pittsburgh; Cambria Steel Co., Johnstown, and the Bethlehem Steel Co., Bethlehem, Pa.

The Rogers Haggerty Co. was the low bidder for the hill to hill bridge to be constructed in Bethlehem, Pa., by the Pennsylvania State Highway Commission. Its bid was $2,568,000. In addition to the structural steel a large tonnage of reinforcing bars will be required for this project.

# GERMAN MARKET STIFFENS

## Finished Material Stiff But Semi-Finished Material and Sheets Slightly Weak

*(Special Correspondence)*

BERLIN, GERMANY, June 20.—Buying activity has been stimulated to a certain extent during the past week by the favorable view taken in industrial circles of the recent conference between the French and German ministers of reconstruction. The conditions still obtaining in Upper Silesia are increasingly influencing the Western market. Added to this is the foreign exchange situation that has once more demonstrated its importance as a determining factor in the German iron and steel market. Though the general tendency is still downward, signs are nevertheless multiplying that the bottom of the price curve has been reached and that a hardening of prices may be looked for soon, as an advance in coal prices is predicted and a further depreciation of the mark considered a certainty. The market in general was rather erratic during the past week, especially in sheets, but recent quotations in finished materials are from 5 to 10 per cent higher than the low prices quoted some weeks ago and mills are showing less inclination to make concessions.

### Price Reductions in Pig Iron

Foundry business is largely of a "pick-up" character, being affected by the pig iron market. Blast furnaces are piling up stock and several stacks have lately been blown out. There being a glut of ore offers, the Siegerland Ironstone Syndicate has had to reduce prices by 30 m. per ton. Present quotations for German pig iron are unchanged, but the Pig Iron Syndicate is contemplating a price reduction. Some isolated deals in Lorraine and Luxemburg iron were closed at 1020 to 1030 m. per ton ($13.77 to $13.90), base Brebach. For economic reasons blast furnaces are increasing the use of scrap wherever practicable, owing to the high cost of certain foreign ores. The market is flooded with ferroalloy offers, English ferromanganese being quoted at £16 and less per ton f.o.b., Antwerp or Hamburg. Keen competition in the ferrosilicon market has prompted German mills to reduce prices for blast furnace ferrosilicon, 10 to 12 per cent Si., by 120 m. as from June 1, so that the official quotation is now 1980 m. ($26.73) per ton, base Oberhausen. Ferrosilicon, 45 per cent Si., which is subject to import permit, is offered by the Stinnes company at Knapsack at 3200 m. ($43.20) per ton, f.o.b. cosumers' point. For 75 per cent Si. stock, 5000 to 5100 m. ($67.50 to $68.85) are charged.

### Semi-Finished Prices Decline

The tone of the semi-finished material market has been decidedly weak, with prices suffering a further decline. We quote billets, basic, at 1330 m. ($17.95), sheet bars at 1400 m. ($18.90), and cogged blooms, open hearth, at 1300 m. ($17.55) per ton.

For rolled material the following prices generally prevail:

| | Marks per Metric Ton | |
|---|---|---|
| Angles | 1800 | $24.30 |
| Bar iron | 1800 | 24.30 |
| Rounds, flats, squares, basic | 1820 | 24.57 |
| Structural shapes | 1780 | 24.03 |
| Beams | 1750 | 23.63 |
| Rivet stock | 1750 | 23.63 |
| Bolt and nut stock | 2200 | 29.70 |
| Rails, heavy | 2250 | 30.38 |
| Fish plates | 2350 | 31.72 |
| Double-angle splice bars | 2750 | 37.12 |
| Rails for mines, inc. fish plates | 1850 | 24.98 |

Contrary to general assumption, the wire convention has been continued for another four weeks for tactical reasons. Official prices in force since April 26 are 2300 m. ($31.05) for drawn commercial wire, 2700 m. ($36.45) for bolt and rivet wire, 2950 m. ($39.82) for galvanized wire, 2700 m. ($36.45) for nails, and 3400 m. ($45.90) for barbed wire. Wire rods in the open market are quoted at 1650 ($22.27).

### Sheet and Plate Market Dull

Inquiries for sheets and plates have been light and prices, especially for thin plates, soft. We quote as follows: Heavy sheets, 1800 m. ($24.30); medium sheets, 1850 m. ($24.98); light plates, 1850 to 1900 m. ($24.98 to $25.65). The Association of German Iron Merchants, at their last meeting held at Düsseldorf in the middle of June, revised prices as follows:

| | Marks per 100 Kg. | |
|---|---|---|
| Bar iron | 230 | $3.10 |
| Hoop iron | 280 | 3.78 |
| Heavy sheets, according to gage | 240–251 | 3.24 to $3.39 |
| Medium sheets | 250 | 3.37 |
| Light plates, according to gage | 262–289 | 3.54 to 3.90 |
| Chequered plates | 268 | 3.62 |

These prices are intended to serve as a guidance for closing deals and though there is a penalty for firms underselling, it remains to be seen whether the Association is strong enough to prevent members from going their own way.

## American Engineers Honored by British

Information by cable brings the announcement that a number of American engineers who are now in Europe as members of the delegation to present the John Fritz medals, awarded to Sir Robert A. Hadfield and to Dr. Eugene Schneider, have had conferred on them honorary membership in a number of British engineering societies.

Charles F. Rand, who has been notably active in mining engineering circles, a trustee for years of the United Engineering Society, which is the institution in charge of the Engineering Societies Building in New York, and who is, among other things, head of the Engineering Foundation, has been made an honorary member of the Iron and Steel Institute. According to the latest list of members of that British society, there are only four other honorary members, the Prince of Wales, the King of the Belgians and two elected from Sweden.

Ambrose Swasey, chiefly prominent in the American Society of Mechanical Engineers, of which he was at one time president, and the man whose generous donation was the means of establishing the Engineering Foundation, was made an honorary member of the Institution of Mechanical Engineers. Both Messrs. Swasey and Rand were elected honorary members of the Institute of Mining and Metallurgy, and they together with Arthur S. Dwight and William Kelly, of the Institute of Mining and Metallurgical Engineers, were made honorary members of the Institution of Mining Engineers.

## How High Freight Rates Operate

YOUNGSTOWN, OHIO, July 5.—Leading independent steel executives in the Mahoning Valley point to the prevailing high railroad freight charges and high rail wages as the chief contributing cause in the present period of economic depression.

"The farmer to-day has not the purchasing power to buy the things he needs and in turn the steel plants and factories of the country are adversely affected," states the president of a large interest. "The increase in freight in a certain type of gang plow, for instance, which costs $125, is $28.50, which the farmer is obliged to pay. This increase is made up by the excess freight on the wheat which the farmer is obliged to sell to purchase the implement; by the higher freight charges paid in assembling at the factory the materials to manufacture the plow, and the higher freight on the plow from the factory to the farmer. In 1915, this gang plow sold at $75. The condition illustrated by the gang plow is, I believe, at the root of the present trouble in this country."

The American Steel & Wire Co., Waukegan, Ill., has established a grocery store to reduce the cost of living for its employees in that city. For the present the store will sell only staple articles, such as smoked meats, flour, soap, etc. In addition to selling groceries to employees, the company plans to sell hard coal at cost.

# Iron and Steel Markets

## PRICES SETTLE FURTHER

### Readjustments Still in Progress, Wages Keeping Pace

#### Pig Iron Production Lowest Since January, 1908 —Railroad and Automobile Buying

The reductions in prices of various steel products formally made on July 5 by the Bethlehem Steel Co., amounting to $4 per ton for bars, plates, shapes, billets, skelp, sheet bars and blue annealed sheets, $5 for black and galvanized sheets and $10 for tin plate, have been met by such of the other producers as were not already selling at the new Bethlehem levels. The fact is that as to some products the announcement merely recorded what the market already had done.

That the Steel Corporation will meet the market is inferred from recent evidence that the schedule of April 13 was not rigidly observed by some of its subsidiaries. Formalities of publication, as followed by the Bethlehem company, tend to make the adjustment of the industry to lower prices gradual and somewhat orderly.

A reduction of 15 per cent in mill wages and of 10 per cent in salaries is a part of the Bethlehem readjustment, and fresh wage reductions at various western Pennsylvania and Youngstown, Ohio, plants are expected about July 15. What action the Steel Corporation will take as to a new wage basis is not indicated as yet.

Only 18 blast furnaces out of 139 in Johnstown, Pittsburgh, Wheeling and Mahoning and Shenango Valley districts were operating over July 4, various stacks being banked. Thus in operations and in sales the first week in July has been making a low record.

Pig iron production in June was smaller than in any month since January, 1908, when the low point was touched due to the 1907 panic. But capacity then was only about half of to-day's.

At 1,064,833 tons, output last month averaged 35,494 tons per day, against 1,221,221 tons in May, or 39,394 tons per day. The month brought a net loss of 14 furnaces, the 76 which were active July 1 having a daily capacity of 32,195 tons, whereas the 90 furnaces in blast June 1 had a daily capacity of 38,080 tons.

For the six months ending June 30 the country's pig iron output, exclusive of charcoal iron, was 9,428,000 tons, against 18,139,000 tons in the first half of 1920.

While railroad buying is restricted to the last degree, there are signs that more business will be released by Aug. 1. The condition of rolling stock and in some case of track is such as to compel action. The Illinois Central's locomotive inquiry is for 100 to 130, representing over 3000 tons of steel. The Southern Pacific is inquiring for 4800 kegs of spikes and 3300 kegs of track bolts.

In the Chicago district a large share of current orders is for Federal, State, municipal and county work. Automobile plants are more of a factor in the Central West. The Ford company has bought 1000 tons of light plates and is about to place a month's requirements in other forms.

Whereas 2c., Pittsburgh, is the new Bethlehem price for plates, some western car repair work recently let brought out plates at 2c., Chicago.

Negotiations are practically completed by which the American Locomotive Co. will supply 45 locomotives to Mexico.

Fabricated steel business has shown some improvement. In the East 10,000 tons of work was contracted for, with 3000 tons practically settled and 2500 tons involved in new projects.

Opposition in the steel trade to the metal schedule of the new tariff bill centers on the manganese ore and ferromanganese duties, which steel manufacturers consider far too high. There is also the anomaly that 20 units of manganese in spiegeleisen pay $1.25 duty, whereas 80 units in ferromanganese pay $39.42, or at nearly an eight-fold rate. The general provision for American valuations would be of little help in keeping out European steel, since nearly all steel duties are specific and hence do not involve valuations.

Over and above the duty on the foreign ores they use, domestic merchant producers of ferromanganese have close to $15 per ton protection against the British product. This margin would encourage more steel companies to make their own alloy.

The monotonous record of recessions in pig iron prices continues. In the South the prevailing price is down 50c. and production is to be further curtailed. Other centers report reductions of from 50c. to $1 and there is no evidence that bottom has yet been struck. Sales are mostly in carload lots, the largest of the week being 2000 tons of basic at Pittsburgh.

## Pittsburgh

PITTSBURGH, July 5.

The new schedule of prices announced by the Bethlehem Steel Corp. is received here with mixed emotions. The reductions have been generally adopted by other independent companies and while official announcement is yet to be made, it is believed that the new prices will be adopted by the Steel Corporation. As a stimulus to business, nobody expects that the new schedule will be any more beneficial than the old one, for the reason that the prices named had been fairly generally quoted against attractive inquiries previously. The claim is made in some quarters that some business which was near the closing stage has been deferred as a result of the announced reduction. Publication of a new price schedule on the minor products still is to be made, but it is expected that the revision will be completed by the end of the week and that then the Steel Corporation will adopt all of the new schedule.

Business over the past week has been smaller than at any time since the contraction started last fall. This condition finds reflection in plant operations, which are unusually small, even for the first week of

# A Comparison of Prices

**Advances Over the Previous Week in Heavy Type, Declines in Italics**

**At date, one week, one month, and one year previous**

**For Early Delivery**

| **Pig Iron,** Per Gross Ton: | July 5, 1921 | June 28, 1921 | June 7, 1921 | July 6, 1920 |
|---|---|---|---|---|
| No. 2X, Philadelphia‡ | $25.50 | $25.50 | $25.50 | $47.15 |
| No. 2, Valley furnace† | 21.00 | 21.00 | 22.50 | 45.00 |
| No. 2, Southern, Cin'ti† | *25.50* | 26.00 | 26.50 | 45.60 |
| No. 2, Birmingham, Ala.† | *21.00* | 21.50 | 22.00 | 42.00 |
| No. 2, foundry, Chicago* | 20.00 | 20.00 | 21.50 | 45.00 |
| Basic, del'd, eastern Pa. | 23.50 | 23.50 | 25.00 | 43.00 |
| Basic, Valley furnace | *20.00* | 20.50 | 21.00 | 45.00 |
| Bessemer, Pittsburgh | *23.46* | 24.46 | 24.96 | 46.40 |
| Malleable, Chicago* | 20.00 | 20.00 | 21.50 | 43.50 |
| Malleable, Valley | *21.50* | 22.50 | 23.00 | 45.00 |
| Gray forge, Pittsburgh | 21.96 | 21.96 | 23.46 | 44.40 |
| L. S. charcoal, Chicago | 37.50 | 37.50 | 37.50 | 57.50 |
| Ferromanganese, del'd. | 70.00 | 70.00 | 75.00 | 225.00 |
| **Rails, Billets, etc.,** Per Gross Ton: | | | | |
| Bess. rails, heavy, at mill. | $45.00 | $45.00 | $45.00 | $55.00 |
| O.-h. rails, heavy, at mill. | 47.00 | 47.00 | 47.00 | 57.00 |
| Bess. billets, Pittsburgh | *33.00* | 37.00 | 37.00 | 60.00 |
| O.-h. billets, Pittsburgh | *33.00* | 37.00 | 37.00 | 65.00 |
| O.-h. sheet bars, P'gh. | *35.00* | 39.00 | 39.00 | 75.00 |
| Forging billets, base, P'gh. | *38.00* | 42.00 | 42.00 | 85.00 |
| O.-h. billets, Phila. | *38.74* | 42.74 | 42.74 | 69.10 |
| Wire rods, Pittsburgh | *45.00* | 48.00 | 48.00 | 75.00 |
| | Cents | Cents | Cents | Cents |
| Skelp, gr. steel, P'gh., lb. | 2.00 | 2.00 | 2.20 | 2.75 |
| Skelp, sh. steel, P'gh., lb. | 2.00 | 2.00 | 2.20 | 3.00 |
| **Finished Iron and Steel,** | | | | |
| Per Lb. to Large Buyers: | Cents | Cents | Cents | Cents |
| Iron bars, Philadelphia | 2.25 | 2.25 | 2.25 | 4.75 |
| Iron bars, Chicago | *2.10* | 2.15 | 2.25 | 3.75 |
| Steel bars, Pittsburgh | *1.90* | 2.00 | 2.10 | 3.50 |
| Steel bars, New York | *2.28* | 2.38 | 2.48 | 4.02 |
| Tank plates, Pittsburgh | 1.90 | 1.90 | 2.00 | 3.50 |
| Tank plates, New York | 2.28 | 2.28 | 2.38 | 3.77 |
| Beams, etc., Pittsburgh | 2.00 | 2.00 | 2.20 | 3.10 |
| Beams, etc., New York | 2.38 | 2.38 | 2.58 | 3.27 |
| Steel hoops, Pittsburgh | 2.50 | 2.50 | 2.75 | 5.50 |

| **Sheets, Nails and Wire,** | July 5, 1921 | June 28, 1921 | June 7, 1921 | July 6, 1920 |
|---|---|---|---|---|
| Per Lb. to Large Buyers: | Cents | Cents | Cents | Cents |
| Sheets, black, No. 28, P'gh. | *3.50* | 3.75 | 3.85 | 5.50 |
| Sheets, galv., No. 28, P'gh. | *4.50* | 4.75 | 5.00 | 7.00 |
| Sheets, blue an'l'd, 9 & 10. | *2.65* | 2.85 | 2.90 | 4.50 |
| Wire nails, Pittsburgh | 3.00 | 3.00 | 3.00 | 4.00 |
| Plain wire, P'gh | 2.75 | 2.75 | 2.75 | 3.50 |
| Barbed wire, galv., P'gh. | 3.65 | 3.65 | 3.85 | 4.45 |
| Tin plate, 100-lb. box, P'gh. | *$5.75* | $6.25 | $6.25 | $7.00 |
| **Old Material,** Per Gross Ton: | | | | |
| Carwheels, Chicago | $13.25 | $13.25 | $13.50 | $35.50 |
| Carwheels, Philadelphia | 18.00 | 18.00 | 18.00 | 38.00 |
| Heavy steel scrap, P'gh | 12.00 | 12.00 | 13.00 | 25.50 |
| Heavy steel scrap, Phila. | 11.00 | 11.00 | 11.50 | 22.50 |
| Heavy steel scrap, Ch'go | *10.00* | 10.25 | 11.50 | 23.50 |
| No. 1 cast, Pittsburgh | 16.00 | 16.00 | 17.00 | 40.00 |
| No. 1 cast, Philadelphia | *16.00* | 17.00 | 17.50 | 37.00 |
| No. 1 cast, Ch'go (net ton) | 12.50 | 12.50 | 13.00 | 36.00 |
| No. 1 RR. wrot, Phila. | 13.50 | 13.50 | 15.00 | 33.00 |
| No. 1 RR. wrot, Ch'go (net) | 9.50 | 9.50 | 10.00 | 25.00 |
| **Coke, Connellsville,** | | | | |
| Per Net Ton at Oven: | | | | |
| Furnace coke, prompt | $3.00 | $3.00 | $3.00 | $17.00 |
| Furnace coke, future | 3.25 | 3.25 | 3.25 | 11.50 |
| Foundry coke, prompt | 4.25 | 4.25 | 4.50 | 17.00 |
| Foundry coke, future | 4.75 | 4.75 | 5.00 | 14.00 |
| **Metals,** | | | | |
| Per Lb. to Large Buyers: | Cents | Cents | Cents | Cents |
| Lake copper, New York | 12.75 | 12.75 | 13.00 | 19.00 |
| Electrolytic copper, N. Y. | 12.62½ | 12.62½ | 13.00 | 19.00 |
| Spelter, St. Louis | **4.35** | 4.25 | 4.55 | 7.85 |
| Spelter, New York | **4.85** | 4.75 | 5.05 | 8.20 |
| Lead, St. Louis | **4.25** | 4.15 | 4.50 | 8.00 |
| Lead, New York | 4.40 | 4.40 | 4.75 | 8.25 |
| Tin, New York | **29.87½** | 29.00 | 29.00 | 48.00 |
| Antimony (Asiatic), N. Y. | 4.75 | 4.87½ | 5.20 | 7.50 |

*The average switching charge for delivery to foundries in the Chicago district is 70c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

**Composite Price, Finished Steel, 2.557c. per Lb.**

| | | |
|---|---|---|
| Based on steel bars, beams, tank plates, open-hearth rails, plain wire, black pipe and No. 28 gage black sheets | June 28, 1921, | 2.607c. |
| | June 7, 1921, | 2.679c. |
| | July 6, 1920, | 3.724c. |
| | 10-year pre-war average, | 1.684c. |

July, which is usually chosen for plant repairs. All producers are carefully watching overhead and where less loss would be sustained by keeping in operation than in shutting down the former course is pursued. The fact that only 18 furnaces out of the 139 in Johnstown, Wheeling, Pittsburgh and The Valley districts were making iron over July 4 is evidence of the small order books of the steel companies and also of the desire to avoid the piling up of cold iron at current costs. Seven furnaces of the 14 Carnegie Steel Co. which were in blast in the last week of June were banked over the holiday and resumed production to-day, while the blast also was turned on this morning at the stack of the Weirton Steel Co., which was banked over Saturday, Sunday and Monday. This brings the number of active furnaces to 26 out of 139, or slightly less than 19 per cent.

Although the railroads tributary to Pittsburgh are not ordering forward rails placed early in the year, they are expected to do so by August 1, and expectations of increased railroad buying are stronger than they have been recently. The railroads in this part of the country are showing a balance on the right side of the ledger, and in order that this development may not be used against them as an argument in favor of lower freight rates, the common tendency lately has been to increase the maintenance of way payrolls and to start up idle shops as a means of getting rid of some of the enlarged earnings. Because of this disposition on the part of the railroad management, orders for steel are expected to be more numerous than they have been. Few, however, expect the railroads to be heavy buyers.

There is considerable opposition among the steel companies to the proposed tariff on ferromanganese and manganese ore and suggestion is heard that some companies will go into the manufacture of ferromanganese because of the proposed duty.

**Pig Iron.**—The only important transaction recently noted is one involving 2000 tons of basic iron recently sold by a Valley steel maker to another steel producer at $20, furnace. This is a drop of 50c. per ton from the former quotation, but the market does not yet give evidence of having touched bottom, as other offerings have been made at $20, furnace, and there are reports from Cleveland that as low as $19 has been done. If business has been done that low, it is probably from the stock of a Cleveland middle interest which has been carrying a big tonnage for some time, bought at well above to-day's market. Little or nothing has been done recently in Bessemer iron, which nominally is quoted at $2 a ton above basic, or offered at $21.50, without takers, and this quotation must be given consideration. Producers of foundry iron claim to have lost prospective orders because of the price reduction just announced by independent companies. W. P. Snyder & Co. report the average price of Bessemer iron from Valley furnaces in June at $23, and the average price on basic the same month at $20.70. These prices show declines of $1.25 in Bessemer from the May average and of $1.175 in basic from the average of May.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.96 per gross ton:

| | |
|---|---|
| Basic | $20.00 |
| Bessemer | $21.50 to 22.00 |
| Gray forge | 20.00 |
| No. 2 foundry | 21.00 |
| No. 3 foundry | 20.50 |
| Malleable | 21.50 to 22.00 |

**Structural Material.**—Since there has been no appreciable increase either in the number or the size of structural awards to fabricating shops in this district, the demand for plain material is extremely limited. The announcement of the cut by the Bethlehem Steel Co. to 2c. base, Pittsburgh, for structural beams has been followed by other independent companies and probably also will be followed by the Steel Corporation. Since this price could have been done previously, it is doubtful whether much new business will develop, and the opinion is expressed in some quarters that an inquiry involving a really sizable tonnage could be placed with a little shopping, at well below 2c. Prices are given on page 49.

**Ferroalloys.**—Business probably never before was so completely at a standstill as at present. With independent steel works operations not much over 20 per cent of capacity, and these companies, unlike the Steel Corporation, dependent on outside sources for supplies of ferromanganese and spiegeleisen, the lack of demand is readily explained. There are occasional inquiries, but when quoted against they usually prove to be nothing more than "feelers." Prices are purely nominal and the undertone of the market is weak, based on bid and asked quotations. It is reported that a price as low as $65 furnace, freight allowed, recently was made on 50 per cent ferrosilicon. Bessemer ferrosilicon and silvery iron at current quotations are much out of line with pig iron and the appearance of a sizable inquiry undoubtedly would develop sharply lower prices.

We quote 76 to 80 per cent ferromanganese at $70 delivered on domestic; English, 76 to 80 per cent, $70 c.i.f. Atlantic seaboard. We quote average 20 per cent spiegeleisen at $27 to $28 furnace quoted by makers on direct business and $25 to $26 furnace on resale tonnages; 50 per cent ferrosilicon, $69 furnace, freight allowed, for domestic and foreign material. Bessemer ferrosilicon is quoted f.o.b. Jackson County and New Straitsville Ohio, furnaces, as follows: 9 per cent, $41.50; 10 per cent, $45; 11 per cent, $48.50; 12 per cent, $51.60. Silvery iron, 6 per cent, $32; 7 per cent, $33.50; 8 per cent, $35.50; 9 per cent, $37.50; 10 per cent, $40; 11 per cent, $43.30; 12 per cent, $46.60. The present freight rate from Jackson and New Straitsville, Ohio, into the Pittsburgh district is $4.06 per gross ton.

**Billets, Sheet Bars and Slabs.**—The lower prices announced by Bethlehem Steel Corporation of $33 for 4-in. billets, $35 for sheet bars and $34 for slabs have been generally adopted by other independents and while there has been no official announcement, it is assumed that the Steel Corporation will name these prices at an early date. Almost no business has been done lately and the new prices are not expected to stimulate the demand because it has been possible to obtain tonnages at these prices for at least the past two weeks. Steel works operations are at the lowest notch since the depression set in, and, including the corporation subsidiaries, it is doubtful whether operations reach 20 per cent of capacity.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at $33; 2 x 2-in. billets, $35; Bessemer and open-hearth sheet bars, $35; slabs, $34; forging billets, ordinary carbons, $38, all f.o.b. Youngstown or Pittsburgh mills.

**Wire Rods.**—Thus far there has been no announcement relative to change from the old base of $48 for No. 5 common soft rods. There is almost no demand, however, and it is currently stated that a bid of $45 would get consideration. Maintenance of the present differential between 4-in. billets and wire rods, of $11, would suggest a new base of the latter of $44. Prices are given on page 49.

**Steel Skelp.**—Reduction by independent companies in the base price to 2c. is looked upon merely as a public announcement of a price which it is known could have been done for at least the past fortnight. The corporation is expected to meet this cut, but it is doubtful whether it will produce much new business in view of the tapering demand in both pipe and boiler tubes.

**Wire Products.**—Evidence of the light demand is found in the fact that at least two large independent producers have shut down their plants, and while this action is explained in part by the fact that there usually is a suspension in the first week in July for necessary plant repairs, neither of these companies has a definite date for resumption. Manufacturers have fair-sized stocks and the fact that jobbers are doing much trading between themselves is keeping down demands upon the former to a minimum. Prices have not yet been revised in keeping with the reduction announced in other finished lines, but a new schedule is probable, notwithstanding the recent reduction of $5 per ton in nails and plain wire and the cutting of the differential in galvanized products.

We quote wire nails at $3 base per keg, Pittsburgh, and bright basic and Bessemer wire at $2.75 base per 100 lb Pittsburgh.

**Nuts, Bolts and Rivets.**—The recent downward revision in prices has been without effect either upon the demand or specifications against unfilled orders. Plant operations here are almost nil, but one company that had been down resumed on part time this week. Prices and discounts are given on page 49. Some makers of track bolts recently have gone as low as $4 per 100 lb. in an effort to stir up orders.

**Spikes.**—The market now is quotable at $3.25 base, Pittsburgh, on all sizes and does not show much real strength even at that figure, as makers are more anxious to sell than buyers are to buy. There are rumors of quotations as low as $3 by some makers on both standard and small spikes. Prices are given on page 49.

**Iron and Steel Bars.**—It is generally expected that the corporation will meet the new independent price of 1.90c., base, Pittsburgh, on soft steel bars, although no official announcement of this sort has been put out. The new base is not expected to appreciably stimulate business for the reason that it is common knowledge that such a price could have been done right along against orders of sufficiently attractive proportions. Reinforcing bars from steel also have been cut to 1.90c., base, but even this price seems high with such bars rolled from old rails or shell steel available at 1.75c. There has been a cut of $5 per ton in iron bars, which now are quoted by makers here at 2.50c., base, for refined iron.

We quote steel bars rolled from billets at 1.95c. to 2.10c.; reinforcing bars, rolled from billets, 1.95c. to 2.10c. base; reinforcing bars rolled from old rails, 1.75c. to 1.85c.; refined iron bars, 2.65c. to 2.75c., in carloads, f.o.b. mill, Pittsburgh.

**Cold-Finished Steel Bars.**—Business is so nearly at a standstill that quotations have little or no value. The general quotation is 3c., base, Pittsburgh. How much lower an order might be placed is purely conjectural in the absence of real inquiries. As low as 2.75c., base, has been quoted and now that soft steel bars definitely are quotable at 1.90c., there are suggestions of 2.65c., and even of 2.50c., as a base for the cold-finished bars.

**Iron and Steel Pipe.**—In comparison with other finished steel products, the demand for pipe is fairly good. One of the Valley producers last week was able to maintain 50 per cent operation and to ship its entire production, and this week's schedule calls for the operation alone of its tube works. Generally, most of the current production is for stock. Shipments are on a tapering scale, due to the fact that oil production continues to be curtailed and the fact that most of the producers have ample supplies and some have a surplus of which they are disposing at low prices. Business in standard pipe is purely of a piecing out character and such business does not bulk large because so many jobbers are matching up stocks among themselves. No announcement yet has been made as to the reduction which seems likely in view of the cut in skelp and other semi-finished and finished products. Discounts are given on page 49.

**Hoops and Bands.**—With merchant steel bars definitely at 1.90c. base, the market for hoops and bands has settled to 2.50c. base and even that quotation, which has been fairly common in the past fortnight, does not mean much because makers have so few chances to quote.

**Hot-Rolled and Cold-Rolled Strips.**—A revision in prices is yet to be made in keeping with the reduction just made in billet prices. A cut seems probable, although it is likely to be a moderate one, in view of the fact that prices of strips have been discounting lower steel prices for several weeks. The market is

quotable from 2.50c. to 2.60c. on hot-rolled strips and from 4.75c. to 5c. on cold-rolled strips. Business still is slack although some demands are coming from the Ford Motor Co. and Dodge Brothers Co. The latter has decided upon an increased production schedule, which will carry its daily output to 525 pleasure cars, which compares with full production of 600 cars daily.

**Plates.**—The reduction by the Bethlehem Steel Co. to 2c., Pittsburgh, has been followed by other independent companies, which hitherto have been nominally quoting 2.20c. Outside of the fact that the reduction brings buyers' and sellers' price ideas a little closer together, it has no importance because some makers for several weeks past have been willing to go as low as 1.90c. to secure business, and an even lower price recently was made by a Chicago district manufacturer. The corporation has not yet made an official announcement as to prices, but undoubtedly will meet the revised independent quotations. We therefore quote sheared plates, ¼ in. and heavier, of tank quality, at 1.90c. to 2c.

**Steel Rails.**—Railroads, despite the lower wage rates which became effective July 1, are not specifying against rail orders placed earlier in the year, but some increase is expected by Aug. 1, when it is believed, the railroads will have used up such supplies as already have been delivered them. The market on light rails, rolled from new steel, still is nominally quoted at 2.20c., Pittsburgh, for 25 to 45-lb. sections, but in view of the reductions recently announced in the finished lines, and also that for some time past there has been considerable shading of that price, it is expected that a new price soon will be named and a base of 2c. is forecast. Demand for light rails still is slack.

We quote 25 to 45-lb. sections, rolled from new steel 2.10c. to 2.20c.; rolled from old rails, 1.80c. to 2c.; standard rails, $45 mill for Bessemer, and $47 for open-hearth sections.

**Sheets.**—Increased production schedules of Dodge Brothers are finding some reflection in the demand for automobile sheets, but outside of this class of material, the market still is exceedingly quiet. The new schedules of the Bethlehem Steel Co. of 2.65c. base for blue annealed, 3.50c. base for black and 4.50c. base for galvanized, have been adopted by most of the other independent makers, and it is assumed that they will be followed by American Sheet & Tin Plate Co. The latter has put into operation its sheet plant at Scottdale, Pa., and is running heavier at some of its other plants running on automobile sheets. So many of the independent mills are down, however that the operations of the industry as a whole do not exceed 20 per cent capacity. No word yet has been received relative to the wage scale conference which convened to-day in Columbus, Ohio, between representatives of the Amalgamated Association of Iron, Steel and Tin workers and manufacturers who have been working under an agreement with this organization. Prices are given on page 49.

**Tin Plate.**—The new base of $5.75, Pittsburgh, for tin plate, announced by the Bethlehem Steel Co., has been adopted by other independents generally, and probably will be adopted by the American Sheet & Tin Plate Co. A good many of the independent plants working under an agreement with the Amalgamated Association are idle this week, but the loss has been somewhat offset by increased operations by the American Sheet & Tin Plate Co. and some of the independents working under an open shop policy. One independent company which has been running eight of its 32 mills for several weeks past has 14 under power this week.

**Coke and Coal.**—The coke market is extremely inactive but fairly steady at $3 per net ton oven, for spot furnace grade and at $4.25 for selected 72-hr. coke, for spot delivery. Oven operators have been willing to keep production where losses have not exceeded those that would have been sustained by complete suspension. Demand, however, has become so limited that there no longer is any opportunity to save money by keeping in operation, and the result has been a suspension of several plants. The contract market is purely nominal in the absence of any important business. The coal market still is weak because there is so little demand. Lake requirements have been disappointing and there is no compensating demand from other quarters. Mine run steam coal is quotable from $1.50 to $2.25 per net ton, mine, by-product from $1.60 to $2, and gas coal from $2.25 to $2.50.

**Boiler Tubes.**—Business is dull to the point of stagnation. Jobbers are getting very little business because it is possible for consumers to buy less than a carload at about the carload prices from manufacturers. Discounts are given on page 49.

**Steel Skelp.**—A tapering demand in pipe and boiler tubes is fully reflected in the call for the raw material. The April 13 base was 2.20c. Pittsburgh for sheared, universal and grooved skelp, but this price has been shaded $2 to $4 a ton against recent inquiries. With plates at 2c. or less and the demand far below normal, users of skelp would not have much trouble in obtaining supplies at 2c.

**Old Material.**—Trading is practically at a standstill. The foundries in this district are running at a very low rate, and are practically out of the market for old material, while interest on the part of steel companies is passive on account of the suspensions for lack of orders and to make the annual plant repairs, for which the first week in July usually is chosen. Offerings of scrap are not heavy, but they cannot be cut off entirely and dealers in their efforts to find an outlet for material which cannot be applied against old contracts, are obliged to put the knife to prices. Machine shop turnings have been rather freely offered lately at $7.50 a gross ton, delivered, which would mean in some instances, where the freight rate from shipping point to Pittsburgh is high, that the railroads would obtain about twice as much as the producer. Figuring a freight rate of $5 a ton from Detroit to Pittsburgh, would mean that the producer or shipper would receive only $2.50 a ton on the shipment. Prices generally are merely an appraisal of what might be obtained and mean little in the absence of business. The Baltimore and Ohio Railroad will receive bids until noon, July 11, for 15 cars and 15,875 gross tons of scrap; also for 3000 lbs. of high speed steel.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate, as follows:

| | |
|---|---|
| Heavy melting steel, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh | $12.00 to $12.50 |
| No. 1 cast cupola size | 16.00 to 16.50 |
| Rerolling rails, Newark and Cambridge, Ohio; Cumberland, Md.; Parkersburg and Huntington, W. Va.; Franklin, Pa., and Pittsburgh | 13.50 to 14.00 |
| Compressed sheet steel | 9.50 to 10.00 |
| Bundled sheet sides and ends, f.o.b. consumers' mills, Pittsburgh dist. | 8.00 to 8.25 |
| Railroad knuckles and couplers | 12.50 to 13.00 |
| Railroad coil and leaf springs | 12.50 to 13.00 |
| Railroad grate bars | 10.00 to 10.50 |
| Low phosphorus melting stock, bloom and billet ends, heavy plates, ¼-in. and thicker | 16.00 to 16.50 |
| Railroad malleable | 12.00 to 13.00 |
| Iron car axles | 18.00 to 19.00 |
| Locomotive axles, steel | 17.50 to 18.00 |
| Steel car axles | 14.50 to 15.00 |
| Cast iron wheels | 13.00 to 13.50 |
| Rolled steel wheels | 12.50 to 13.00 |
| Machine shop turnings | 7.00 to 7.50 |
| Sheet bar crop ends at origin | 12.00 to 12.50 |
| Heavy steel axle turnings | 8.50 to 9.00 |
| Short shoveling turnings | 8.00 to 8.50 |
| Heavy breakable cast | 14.00 to 14.50 |
| Stove plate | 12.00 to 12.50 |
| Cast iron borings | 8.00 to 8.50 |
| No. 1 railroad wrought | 12.00 to 12.50 |

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Directors of the Truscon Steel Co., Youngstown, Ohio, have declared a quarterly dividend on common stock of 1¾ per cent, payable July 15 to holders of record July 5. Previous to the recent payment of a common stock dividend of 50 per cent, the company maintained a quarterly dividend rate of 4 per cent on the junior issue. Directors met at the home office in Youngstown, instead of in Detroit as usual, and inspected the main properties.

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The Reedy Foundry Co., one of the oldest Chicago jobbing foundries, has been sold to the Oil & Chemical Co., Chicago, which will transfer the plant into a refinery. W. H. Reedy, head of the Reedy Foundry Co., is interested in the oil concern. All of the foundry equipment will be sold.

## Cleveland

CLEVELAND, July 5.

**Iron Ore.**—The market is inactive. A few sales have been made in lots of around 5000 tons of certain ores for mixtures, but only one inquiry is reported involving any large tonnage requirements. Ore shipments during June were 3,600,000 gross tons, or only about 40 per cent of the movement during the corresponding month last year, when the lake shipments amounted to 9,233,566 tons. Shipments during May were 2,594,027 tons. Lake shipments up to July 1 were 6,371,227 tons as compared with 16,440,515 for the same month last year. The total amount of iron ore in furnace yards and on Lake Erie docks June 1 was 27,840,000 tons, or an increase of 240,000 tons over May 1. This compares with 18,975,000 on June 1, 1920. The consumption of Lake Superior ore during May was approximately 1,725,000 tons, or an increase of 48,000 tons over April.

We quote delivered lower lake ports: Old range Bessemer, 55 per cent iron, $6.45; Old range non-Bessemer, 51½ per cent iron, $5.70; Mesabi Bessemer, 55 per cent iron, $6.20; Mesabi non-Bessemer, 51½ per cent iron, $5.55.

**Pig Iron.**—The buying of pig iron continues in light volume and orders are almost wholly for car lots. The market still shows a downward tendency. While open quotations range from $21 to $21.50, Valley furnace, for No. 2 foundry iron, the $21 price has been shaded in some cases, although some car lot sales have been made at $21.50. The only inquiry of any size is from a Johnstown, Pa., radiator interest for 250 tons. June shipments as a whole fell off as compared with May, and with very few shipping orders at present, producers do not look for an improvement in consumption for this month.

We quote delivered Cleveland as follows, based on the new freight rate, there being a 56c. switching charge for local iron, a $1.96 freight rate from Valley points, a $3.36 rate from Jackson and $6.67 from Birmingham:

| | |
|---|---|
| Basic | $21.96 |
| Northern No. 2 fdy., sil. 1.75 to 2.25 | 22.50 |
| Southern fdy., sil. 2.25 to 2.75 | 29.42 |
| Ohio silvery, sil. 8 per cent | 38.86 |
| Standard low phos., Valley furnace | $37.00 to 38.00 |

**Finished Iron and Steel.**—The price reduction by the Bethlehem Steel Co. had little effect on the market, as buyers had expected reductions July 1, and quotations as low as, and in some cases lower, than the newly named prices, have become common in steel bars, plates and structural material. Some of the independent mills promptly accepted the new prices and others will probably do so, although the attitude of the Steel Corporation has not yet been made known. Consumers see no indication that prices will be stabilized at the new levels, but look for further price irregularities. While the market continues very quiet, some of the mills report a little improvement in inquiries both in number and tonnage involved. The Ford Motor Co. is understood to have placed 1000 tons of light plates for frames, dividing this steel among four mills. The Illinois Central Railroad is inquiring for 100 Mikado type locomotives requiring 3000 tons of steel. The Brown Hoisting Machinery Co. has taken the coal handling plant for the Superior Coal & Dock Co., requiring 800 tons of structural material. The Akron, Canton & Youngstown Railroad is inquiring for 600 tons of rails. The Ohio State University stadium and other steel building work previously noted have not yet been placed. With the reduction in mill prices, Cleveland warehouse prices will be reduced within a day or two.

Cleveland warehouses quote steel bars at 2.99c.; plates, 3.09c.; structural shapes, 3.09c.; No. 9 galvanized wire, 3.75c.; No. 9 annealed wire, 3.50c.; No. 28 black sheets, 4.50c.; No. 28 galvanized sheets, 5.50c.; No. 10 blue annealed sheets, 3.60c. to 3.75c.; hoops and bands, 3.69c.; shafting, 4.25c.

**Bolts and Nuts.**—Bolts and nuts still show a tendency toward lower levels. Further reductions amounting to 5 per cent have been made on large machine and carriage bolts by some makers. Prices on semi-finished nuts are also weaker. Local makers are meeting on desirable orders a 10 per cent cut in prices that had appeared in the East. The demand for bolts and nuts has improved somewhat owing to buying by the railroads. Some orders up to carloads have come from this source.

**Sheets.**—Some of the independent mills have adopted the price reductions made by the Bethlehem Steel Co., but others have as yet taken no action on price changes, and still others without formally reducing prices will meet the new prices, which seem to be generally recognized as the going market quotations.

**Hot-Rolled and Cold-Rolled Strip Steel.**—There is some demand for strip steel from the Detroit territory. Hot-rolled strips are quoted at 2.55c. to 2.60c. and cold-rolled strip steel at 4.75c. to 5c.

**Rivets.**—The demand for rivets is only for small lots and prices are weak. Quotations of 2.75c. for structural and 2.85c. for boiler rivets have appeared. Small lot sales are being made at $3 a ton higher prices.

**Coke.**—A few car lot sales of the better grades of Connellsville foundry coke are quoted at $5 per ton. Some makes are quoted as low as $4.

**Old Material.**—Only one mill in this territory is taking shipments of scrap and that in very small quantities. There is virtually no activity in the market, sales being limited to a few car lot transactions between dealers. Dealers are offering $10 per ton for heavy melting steel scrap. Prices are unchanged.

We quote per gross ton delivered consumers' yards in Cleveland and vicinity as follows:

| | |
|---|---|
| Heavy melting steel | $10.50 to $11.00 |
| Steel rails, under 3 ft | 11.50 to 12.00 |
| Steel rails, rerolling | 13.00 to 14.00 |
| Iron rails | 11.00 to 12.00 |
| Iron car axles | 18.00 to 19.00 |
| Low phosphorus melting scrap | 12.50 to 13.00 |
| Cast borings | 7.00 to 7.50 |
| Machine shop turnings | 4.50 to 4.75 |
| Mixed borings and short turnings | 7.00 to 7.50 |
| Compressed steel | 6.50 to 7.00 |
| Railroad wrought | 10.00 to 10.50 |
| Railroad malleable | 11.00 to 12.00 |
| Light bundled sheet stampings | 3.50 to 4.00 |
| Steel axle turnings | 8.00 to 8.50 |
| No. 1 casting | 16.00 to 16.50 |
| No. 1 busheling | 7.50 to 8.00 |
| Drop forge flashings, over 10 in. | 5.50 to 6.00 |
| Drop forge flashings, under 10 in. | 6.00 to 6.50 |
| Railroad grate bars | 12.75 to 13.00 |
| Stove plate | 12.75 to 13.00 |
| Pipes and flues | 6.00 to 7.00 |

## Birmingham

BIRMINGHAM, ALA., July 5.

**Pig Iron.**—With the coming in of July the Birmingham iron market had reached a level of $21, some carloads still going at $21.50, but the former was admitted to be the new base. Among other recent purchasers was the American Radiator Co., which is credited with having taken 1000 tons and is known to have placed one order for 500 tons at $21. Numbers of consumers made offers during the week of $20, but none of these offers is believed to have been taken. It is known that one maker turned down an offer of 2000 tons at $20 base and that a like amount of iron brought $21.50 shortly before close of the month. A fairly good tonnage was sold during the week, one concern admitting the booking of 6500 tons recently. However, furnace interests feel that the limit has been reached and will not continue production on the present price tendency. The Sloss-Sheffield Steel & Iron Co. closed down its one active stack the first of the month and the Alabama Co. will bank or blow out at Gadsden about July 15. The action of the latter company appears significant in the light of its reputation for ability to dispose of a one-stack production. With the Alabama Co. out of the merchant iron production, the Woodward Iron Co. will have the only producing stack. The Sloss-Sheffield company has large stocks of yard iron. Its operations will be confined for the time being to as much of by-product works as will furnish the city of Birmingham with gas. Southern iron interests want some freight rate relief and that is believed to be part cause of the general furnace suspension. It is not a producers' strike in name, but is beginning to resemble one.

We quote per gross ton f.o.b. Birmingham district furnace, as follows:

| | |
|---|---|
| Foundry, sil. 1.75 to 2.25 | $21.00 |
| Basic | 20.00 |
| Charcoal | 35.00 |

**Cast Iron Pipe.**—The National Cast Iron Pipe Co. continues to book orders for the Middle Western cities,

but no large order has been taken in Birmingham since that of 5000 tons for Phoenix, Ariz. Recent bidding has shown that sizes from 24 in. and up go under $40, although $45 remains base for smaller sizes. Sanitary shops have booked Eastern business. The $40 base seems fairly firm.

**Old Material.**—With the slowing down of operations at the Gulf States Steel Co. mills, heavy melting steel is not in much demand. Cast scrap is going fairly well to pipe works and stove and radiator works. Freight rates prevent scrap getting beyond the district at this time.

We quote per gross ton f.o.b. Birmingham district yard as follows:

| | |
|---|---|
| Steel rails | $10.00 to $11.00 |
| No. 1 steel | 9.00 to 10.00 |
| No. 1 cast | 16.00 to 17.00 |
| Car wheels | 16.00 to 17.00 |
| Tramcar wheels | 15.00 to 16.00 |
| No. 1 wrought | 13.00 to 14.00 |
| Stove plate | 9.00 to 10.00 |
| Cast iron borings | 6.00 to 7.00 |
| Machine shop turnings | 6.00 to 7.00 |

## Buffalo

BUFFALO, July 5, 1921.

**Pig Iron.**—Iron offered by a steel mill is the best-moving furnace product in this district. Sales of 2,500 tons last week are reported as going to various points east of Buffalo. The producer insists that the lowest price on this iron has been $21.50 base, f.o.b. Buffalo despite reports from other points that this iron was offered through brokers for $20 and $20.75. Two furnaces have been offered considerable tonnage if they would consider $18.50 base and both producers rejected the offer. Inquiry of 3000 tons is in hand and sales for a week total about 600 tons. Carload lots of malleable are sold at $23, and the same price is quoted on carload lots of 2.75 to 3.25 silicon. Rumors that the largest buyer in this market has lately made a purchase of a large tonnage at $18 lack verification. An agency having a number of branch sales offices reports total orders for the week amount to 500 tons sold at $22 base. In one instance, a small carload of No. 2 plain was sold at $24.

We quote f.o.b. dealers' asking prices per gross ton Buffalo as follows:

| | |
|---|---|
| No. 1 foundry, 2.75 to 3.25 sil. | $22.75 to $23.50 |
| No. 2X foundry, 2.25 to 2.75 sil. | 21.75 to 22.50 |
| No. 2 plain, 1.75 to 2.25 sil. | 20.75 to 21.50 |
| Basic (nominal) | 21.00 to 22.00 |
| Malleable (nominal) | 23.00 to 24.00 |
| Lake Superior charcoal | 37.00 |

**Finished Iron and Steel.**—Mills and sales offices unite in saying business could not be worse. Opinion is general that actual wants have been disregarded for several weeks, while buyers watched for the new price schedules. The fact that this revision did not come, made no change in the policy of the buyers, which it is hoped will now be changed as price reductions are being announced. A situation with reference to Canadian business—always interesting in this vicinity—has arisen and threatens to bring a complete withdrawal of shipments of American-made steel products into the Dominion. The Canadian customs has promulgated a ruling which requires every invoice of steel going into Canada to bear a footnote showing that the shipment is billed at cost plus a reasonable profit. Coming at a time when sales are either at cost or even less, shippers here say the ruling is offensive and that it will result in an advance in prices on Canadian shipments or withdrawal from that market. Sales of two or three tons of bars daily, comprise the sole activity of one of the largest interests. The rail department of the largest mill will operate at 25 per cent capacity for July, but has no schedule beyond that date. A fair amount of plate and reinforcing bar inquiry has reached this mill. The Buffalo Structural Steel Co. will fabricate 400 tons of shapes for the new Cataract theatre at Niagara Falls, N. Y.

We quote warehouse prices f.o.b. Buffalo as follows: Structural shapes, 3.25c.; plates, 3.25c.; plates, No. 8 gage, 4.10c.; soft steel bars and shapes, 3.15c.; hoops, 3.85c.; blue annealed sheets, No. 10 gage, 3.90c.; galvanized steel sheets, No. 28 gage, 6.05c.; black sheets, No. 28 gage, 5.05c.; No. 9 gage annealed wire, 4.35c.; cold rolled strip steel, 8.15c.

**Old Material.**—One dealer has sold 500 tons of heavy melting steel to a wire manufacturer and it is understood the same buyer has made other purchases of the same material. A dealer has not bought or sold a ton of material in a week. All yards are well stocked, many of them holding material bought when prices were almost double present quotations. A few tonnages of bundled sheet stampings have been moved.

We quote dealers' asking prices per gross ton, f.o.b. Buffalo, as follows:

| | |
|---|---|
| Heavy melting steel | $12.00 to $12.50 |
| Hydraulic compressed | 9.00 to 9.50 |
| Low phos., 0.04 and under | 17.00 to 18.00 |
| No. 1 railroad wrought | 13.00 to 14.00 |
| Car wheels | 14.50 to 15.00 |
| Railroad malleable | 10.50 to 11.50 |
| Machine shop turnings | 6.00 to 7.00 |
| Heavy axle turnings | 9.00 to 10.00 |
| Clean cast borings | 6.00 to 7.00 |
| Locomotive grate bars | 10.50 to 11.50 |
| Wrought pipe | 8.00 to 9.00 |
| No. 1 busheling | 9.50 to 10.50 |
| Stove plate | 14.00 to 15.00 |
| Bundled sheet stampings | 7.00 to 8.00 |
| No. 1 machinery cast | 17.50 to 18.00 |

## Boston

BOSTON, July 5.

**Pig Iron.**—The outstanding features the past week are the shrinkage in sales and a stiffening of prices, especially on Buffalo iron. Buffalo irons, silicon 1.75 to 2.50, offered a week ago at $20.75 furnace, and silicon 2.50 to 3 at $20.90, are now quoted at $21.25 and $21.40, respectively. Less than half a dozen cars were sold to foundries at the lower quotations, and comparatively little other Buffalo furnace iron is available at the moment at less than $23 furnace base. The market on eastern Pennsylvania also has a firmer undertone, nothing having sold since last reports for less than $21 furnace base. Certain brokers are credited with going short of the market and the firming up of Buffalo and eastern Pennsylvania prices possibly has something to do with such selling. Sales for the week include 200 tons, silicon 1.75 to 2.25, Buffalo to a Massachusetts melter at $21, furnace, 100 tons eastern Pennsylvania, silicon 2.25 to 2.75, to a Massachusetts foundry at $22 furnace, 100 tons, silicon 2.75 to 3.25, to an eastern Connecticut plant at $22.50 furnace, 100 tons, silicon 1.75 to 2.25, and 100 tons, silicon 2.75 to 3.25, to another Connecticut foundry at $22. These, with car-lot sales, largely No. 1X iron, bring the aggregate sales for the week up to something better than 1000 tons. Inquiries, including one of 600 tons No. 2X iron from a Massachusetts consumer, approximate 2200 tons. Delivered prices follow:

| | |
|---|---|
| East. Penn. silicon 2.25 to 2.75 | $27.21 to $29.96 |
| East. Penn. silicon 1.75 to 2.25 | 26.71 to 29.46 |
| Buffalo, silicon 2.25 to 2.75 | 25.96 to 29.46 |
| Buffalo, silicon 1.75 to 2.25 | 25.46 to 28.46 |
| Virginia, silicon 2.25 to 2.75 | 33.58 to 34.58 |
| Virginia, silicon 1.75 to 2.25 | 32.58 to 33.58 |
| Alabama, silicon 2.25 to 2.75 | 33.16 to 33.66 |
| Alabama, silicon 1.75 to 2.25 | 32.66 to 33.16 |

**Warehouse Business.**—Although individual orders continue small, the consumption of iron and steel appears on the mend. Warehouse business, however, is in no instance more than 50 per cent of that for the corresponding time last year and in a majority of cases less. In at least one case, employees are working on half time. Stocks are complete although not excessive. Those of nails, especially wire, are small and jobbers will be obliged to buy within the near future. The recent downward revision in prices on bolts has failed to stimulate business. The demand for machine screws is improving and covers a wide range of sizes.

Jobbers now quote: Soft steel bars, $3.18 per 100 lb. base; flats, $4.18 to $4.28; concrete bars, $3.18 to $3.45¼; tire steel, $4.25 to $4.75; spring steel, open hearth, $5.25; crucible, $11.50; steel bands, $3.83 to $4.48; steel hoops, $4.38; toe calk steel, $5.25; cold rolled steel, $4.65 to $5.15; structural, $3.18 to $3.28; plates, $3.28 to $3.50; No. 10 blue annealed sheets, $4.03; No. 28 black sheets, $5.50; No. 28 galvanized sheets, $6.50; refined iron, $3.18 to $5; best refined, $5; Wayne iron, $7.50; Norway iron, round, ¼-in. to 2½-in., 7.25c. per lb. net; other sizes, 8c. base.

**Tool Steel.**—High speed steel generally is quoted at $1, as compared with $1.10 to $1.25 a month or so ago, but quotations on other tool steels remain practically unchanged. Going business is of a hand-to-mouth character, notwithstanding the fact stocks in consumers hands in many cases are badly broken. Offers

of German and English steel at concessions apparently fail to interest the trade.

**Finished Material.**—Structural prospects continue in light supply and some lots already bid on by fabricators remain unlet, including 400 tons for a Boston municipal building. Bids are in on 650 tons for bridge connecting Lynn and Point of Pines, Mass. Plans for a street railway underground loop at East Boston are in the preliminary stages. The estimated structural needed is 1000 tons. Plates are quoted at 2c. to 2.20c., Pittsburgh, with going business not exceeding car lots. The Bath Iron Works, Bath, Me., will soon ask bids on a round tonnage of sheared and boiler plates for five Government lightships. Buying of bars has been held up pending an expected new mill price schedule July 1. Mill representatives look for a flurry of business within the next fortnight. As low as 1.85c., Pittsburgh, has been done on soft bars by Rhode Island bolt and nut makers.

**Coke.**—New England coke producers are unanimous in the opinion, based on shipping instructions, that July will mark an improvement in the movement of foundry grade. Buyers in many instances are considering the wisdom of accumulating coke during the third quarter, and a considerable number already have covered possible requirements, as is attested by contracts signed up since last reports. No change in prices is noted.

**Old Material.**—The market was inactive the past week, and aside from a slight hardening in quotations on cast iron borings, without special features. Foundries show practically no interest in the usual run of machinery cast, but scattered small tonnages of textile machinery cast and one 100 ton lot have been taken by Massachusetts consumers at $17.50 delivered. Comparatively little heavy melting steel is going to Pennsylvania mills and usually for stocking purposes. A dealer paid $2 for a car of machine shop turnings this week, but others are willing to pay $2.50 to $3. The firmer undertone to cast iron borings quotations is due to inquiries from chemical interests, amounting to several cars. A local dealer sold a small tonnage of boiler clippings to a Dorchester foundry at $15 delivered.

The following prices are for gross ton lots delivered consuming points:

| | |
|---|---|
| No. 1 machinery cast | $17.00 to $17.50 |
| No. 2 machinery cast | 15.50 to 16.00 |
| Stove plate | 15.00 to 16.00 |
| Railroad malleable | 14.00 to 15.00 |

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

| | |
|---|---|
| No. 1 heavy melting steel | $5.50 to $6.00 |
| No. 1 railroad wrought | 10.50 to 11.00 |
| No. 1 yard wrought | 8.50 to 9.00 |
| Wrought pipe (1-in. in diameter, over 2 ft. long) | 6.50 to 7.00 |
| Machine shop turnings | 2.50 to 3.00 |
| Cast iron borings, rolling mill | 3.00 to 3.50 |
| Cast iron borings, chemical | 3.50 to 4.00 |
| Blast furnace borings and turnings | 2.50 to 3.00 |
| Forged scrap and bundled skeleton | 5.00 to 5.50 |
| Street car axles and shafting | 12.00 to 12.50 |
| Car wheels | 11.50 to 12.00 |
| Rerolling rails | 9.00 to 10.00 |

## St. Louis

ST. LOUIS, July 2.

**Pig Iron.**—Sales are few and are confined largely to carload lots, the principal exceptions being 800 tons of Northern foundry bought by a Western consumer and 100 tons of low phosphorous purchased in the local industrial district. Few open-hearth furnaces are in operation in this section and the melt of malleable and gray iron foundries is less than 30 per cent of normal. Many melters still have liberal stocks, and even those who have cleaned up their yards are buying from hand to mouth. The lowest quotation on Southern foundry reported in this district is $21.50 base Birmingham, but the addition of $5.74 freight makes the delivered price too high to permit competition with Northern iron. The local market on Northern material is largely determined by Chicago furnace prices, which are now $20, Chicago, or $22.80 delivered St. Louis, for foundry, basic and malleable. The Granite City furnace is still in blast, and is meeting Chicago competition, while the Mississippi Valley stack still has stocks which it is offering on the market. There is very little activity in the ferroalloys, the only inquiry reported being for 50 tons of 50 per cent ferrosilicon.

We quote delivered consumers' yards St. Louis:

| | |
|---|---|
| Northern No. 2 foundry, sil. 1.75 to 2.25 | $22.80 to $23.30 |
| Northern malleable | 22.80 to 23.30 |
| Basic | 22.80 to 23.30 |
| Southern Foundry, sil. 1.75 to 2.25 | 27.24 to 27.74 |

**Coke.**—Because of their light operations melters are buying sparingly, with the result that sales are small and scattered. Standard Connellsville beehive foundry is quoted at $5 ovens, or $10.04 delivered St. Louis. The Granite City by-product ovens are actively competing for business, and are meeting beehive prices. Local by-product foundry is quoted at $11.50 ovens, or $11.70 delivered anywhere in the industrial district.

**Old Material.**—The only bright spot in the old material market is the relaying rail situation. Inquiries have been received here for 26 miles from one Texas industrial concern, another inquiry for 20 miles from a Missouri industrial and there is an inquiry for 400 tons from Michigan. Some actual sales are being reported, and the relaying market is looking up. Coal mines also are inquiring for light weight rails. Users of scrap either are closed down or running on rather short time, and there is no immediate outlet for this material. Despite the low level of the market, railroads are offering material, the lists closing this and next week covering 3000 tons for the southwestern region of the Pennsylvania System, 1500 tons for the Santa Fe, and the Big Four has an open list.

We quote dealers' prices, f.o.b. consumer's works, St. Louis industrial district and dealers' yards as follows:

| | |
|---|---|
| *Per Gross Ton* | |
| Iron rails | $12.50 to $13.00 |
| Steel rails, rerolling | 12.00 to 12.50 |
| Steel rails, less than 3 ft. | 11.50 to 12.00 |
| Relaying rails, standard section, subject to inspection | 27.00 to 29.00 |
| Cast-iron car wheels | 12.00 to 12.50 |
| No. 1 railroad heavy melting steel | 11.00 to 11.50 |
| No. 1 heavy shoveling steel | 9.50 to 10.00 |
| Ordinary shoveling steel | 9.00 to 9.50 |
| Frogs, switches and guards, cut apart | 11.00 to 11.50 |
| Ordinary bundled sheet | 4.00 to 4.50 |
| *Per Net Ton* | |
| Heavy axle and tire turnings | 5.00 to 5.50 |
| Iron angle bars | 10.50 to 11.00 |
| Steel angle bars | 10.00 to 10.50 |
| Iron car axles | 18.00 to 18.50 |
| Steel car axles | 12.00 to 12.50 |
| Wrought iron arch bars and transoms | 12.50 to 13.00 |
| No. 1 railroad wrought | 9.00 to 9.50 |
| No. 2 railroad wrought | 8.50 to 9.00 |
| Railroad springs | 10.00 to 10.50 |
| Steel couplers and knuckles | 10.00 to 10.50 |
| Locomotive tires, 42 in. and over, smooth inside | 8.00 to 9.00 |
| No. 1 dealers' forge | 6.50 to 7.00 |
| Cast iron borings | 6.00 to 6.50 |
| No. 1 busheling | 9.00 to 9.50 |
| No. 1 boilers cut in sheets and rings | 6.00 to 6.50 |
| No. 1 railroad cast | 11.50 to 12.00 |
| Stove plate and light cast | 10.50 to 11.00 |
| Railroad malleable | 9.00 to 9.50 |
| Agricultural malleable | 9.00 to 9.50 |
| Pipes and flues | 6.50 to 7.00 |
| Heavy railroad sheet and tank | 6.00 to 6.50 |
| Light railroad sheet | 3.50 to 4.00 |
| Railroad grate bars | 7.00 to 7.50 |
| Machine shop turnings | 4.00 to 4.50 |
| Country mixed iron | 6.50 to 7.00 |
| Uncut railroad mixed | 8.00 to 8.50 |
| Horseshoes | 10.00 to 10.50 |
| Railroad brake shoes | 7.50 to 8.00 |

**Finished Iron and Steel.**—Buying is so limited that the market is largely untested in this district. Some few sales at the full April 15 prices are reported, and on the other hand some concessions have been made, notably on bars, sheets and track fastenings. Soft steel bars have been sold at from 1.90c. to 2c., Pittsburgh, blue annealed sheets at as low as 2.65c., base Pittsburgh, while there are unverified rumors of sales of galvanized and black at 4.50 and 3.50c., base Pittsburgh, respectively. Quotations of 3.25 and 4.20c., Pittsburgh, on track spikes and bolts are not uncommon and as low as 3.10 and 4.10c. have been named. The Mobile & Ohio is in the market for 550 kegs of spikes and 165 kegs of bolts. The principal item of interest in the structural field is a machine shop for the Motor Transport division of the Army at Fort Leavenworth, Kan., the general contract for which has been let to the Murch Brothers Construction Co., St. Louis. The fabrication of the steel, amounting to 1100 tons, has not yet been let. The Unit Construction Co.,

St. Louis, has the general contract for a depot at Memphis for the Illinois Central, which will involve 300 tons of reinforcing material, which has not yet been let. Warehouse prices on bolts, nuts, and sheets have been reduced.

For stock out of warehouse, we quote: Soft steel bars, 3.22½c. per lb.; iron bars, 3.22½c.; structural shapes, 3.32½c.; tank plates, 3.32½c.; No. 10 blue annealed sheets, 3.97½c.; No. 28 black sheets, cold rolled, one pass, 5.25c.; No. 28 galvanized sheets, 6.25c.; cold drawn rounds, shafting and screw stock, 4.72½c.; structural rivets, $4.62½ per 100 lb.; boiler rivets, $4.72½; tank rivets, 7/16 in. and smaller, 60-10 per cent off list; machine bolts, large, 55 per cent; small, 60 per cent; carriage bolts, large, 50-5 per cent; small, 55 per cent; lag screws, 60 per cent; hot pressed nuts, square or hexagon, blank, $3.25; and, tapped, $3.00 off list.

## New York

NEW YORK, July 5.

**Pig Iron.**—Reports from other centers of less weakness in Buffalo iron are not confirmed in New York and this iron is still to be had on a basis of $21, furnace, for No. 2 plain. Eastern Pennsylvania iron is weak and sales are reported as low as $21, furnace. Sales are limited to carload lots and no inquiries of importance are pending, although some interest is being shown in last quarter business. Furnaces are not disposed to quote for delivery later than August or possibly September.

We quote delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $5.46 from Buffalo and $6.16 from Virginia:

| | |
|---|---|
| East. Pa. No. 1 fdy., sil. 2.75 to 3.25 | $27.52 to $28.52 |
| East. Pa. No. 2X fdy., sil. 2.25 to 2.75 | 26.52 to 27.52 |
| East. Pa. No. 2 fdy., sil. 1.75 to 2.25 | 25.52 to 26.52 |
| Buffalo, sil. 1.75 to 2.25 | 25.46 to 26.46 |
| No. 2 Virginia, sil. 1.75 to 2.25 | 29.16 to 30.16 |

**Ferroalloys.**—The bids on 100 net tons of ferromanganese for the Government, referred to a week ago, are not yet reported as having been accepted and the market is featureless with quotations nominal. It is reported, however, that a carload lot was sold at an equivalent of $72.50, delivered. The spiegeleisen market is quiet with inquiries of two 100-ton lots, but no sales. There is no demand for manganese ore on which the quotations continue nominal. The prevailing topic is the question of the proposed duties on manganese ore and ferromanganese, concerning which opinions decidedly differ, depending upon the interests concerned. It is recognized, however, that it will be some time before the matter is settled and it is evident a stiff fight will be put up by the various interests before this part of the bill is approved. Sales of ferrosilicon, 50 per cent, are confined to a carload or two here and there, which can be obtained at a range of $67.50 to $70 per ton, delivered, depending on conditions. Quotations are as follows:

| | |
|---|---|
| Ferromanganese, domestic, delivered, per ton | $80.00 |
| Ferromanganese, British, seaboard, per ton | $75.00 |
| Spiegeleisen, 20 per cent, furnace, per ton | $30.00 |
| Ferrosilicon, 50 per cent, delivered, per ton | $67.50 to $70.00 |
| Ferrotungsten, per lb. of contained metal | 48c. to 58c. |
| Ferrochromium, 6 to 8 per cent carbon, 60 to 70 per cent Cr., per lb. Cr | 16c. to 16.50c. |
| Ferrovanadium, per lb. of contained vanadium | $5.00 |
| Ferrocarbontitanium, 15 to 18 per cent, net ton | $200.00 |
| Ferrocarbontitanium, 15 to 18 per cent, 1 ton to carloads, per ton | $220.00 |
| Ferrocarbontitanium, 15 to 18 per cent, less than 1 ton, per ton f.o.b. Niagara Falls, N. Y. | $250.00 |
| Manganese ore, foreign, per unit, seaboard | 22.50c. |

**Finished Iron and Steel.**—No particular interest is shown in the announcement of a downward revision in finished steel prices by the Bethlehem Steel Co., as they are regarded largely as the official recognition of prices already the basis of transactions. As to sheets the decided cut is taken as an illustration, so far as the Eastern market is concerned, of the basis on which the automobile trade has lately been purchasing. The announced price of 2c. for plates is not taken seriously for the reason that in the last few days, for example, the Steel Corporation is reported to have sold to a leading railroad line on a basis of less than 2c., Chicago basis. Fabricated steel business is the one division of the market which is looking upward. Quite a number of relatively small projects are under active negotiations with every indication that they are definitely to be put through, and the situation appears to be an outcome in part of a decided betterment in the efficiency of the building trades. Among the awards of the week may be mentioned the following: 2100 tons for a department store, 230 West 125th Street, 800 tons for a 16-story office building at 66 West Fortieth Street, and 500 tons for a 12-story office building at Madison Avenue and Forty-fourth Street, all to the Hay Foundry & Iron Works; 700 tons for a mercantile building, East Twenty-fifth Street, to the Hinkle Iron Co.; 500 tons for transfer tables, New York terminal, Lehigh Valley Railroad, to the Bethlehem Steel Bridge Corporation; 2700 tons for 14 oil storage tanks for the Government to the Pittsburgh & Des Moines Bridge Co.; 1500 tons for the Chesapeake & Ohio over the Licking River to the Mt. Vernon Bridge Co.; 225 tons for dormitories for the Sisters of Mercy, East 199th Street, to the Bethlehem Steel Fabricators. New work includes 700 tons for a marine terminal at Wilmington, 250 tons for two bridges for the Boston & Maine and 200 tons for the Grand Trunk at New Stratford, N. H. It is expected that the Fort Pitt Bridge Co. will be awarded 1400 tons for the airship hangars for the War Department and the Belmont Iron Co. 500 tons for similar work. Terry & Tench Co., Inc., is low in the bidding for a 650-ton bascule span for the Hudson River bridge between Troy and Cohoes; Rodgers & Hagerty are the low bidders on the hill-to-hill bridge at Bethlehem, Pa., and bids have been received on the barge canal freight terminal at Rochester, N. Y., taking 400 tons. The power house project of the Edison Electric Illuminating Co., Boston, has been postponed. In car repair work an inquiry has been received from the New York Central lines and possibly may mean considerable more work than now indicated.

Prices unchanged. We quote for mill shipments, New York, as follows: Soft steel bars, 2.28c. to 2.48c.; plates, 2.28c. to 2.58c.; structural shapes, 2.38c. to 2.58c.; bar iron, 2.28c.

**Warehouse Business.**—The market continues quiet since last week's change in prices by most warehouses, the reduction thus far not having stirred up any new business. Some dealers are looking forward to the curtailment of mill production this month as the possibility of greater buying from warehouses. The few contracts in the pipe market are still pending. There is no change in the brass and copper situation. We quote prices on page 62.

**High Speed Steel.**—There are no signs of improvement, sales still being confined to a few small orders to complete stocks. Producers continue to quote 90c. to $1 per lb. with resales and special concessions sometimes made at 85c. per lb.

**Old Material.**—The chief activity is in heavy melting steel and stove plate, though there are but few transactions in either. One broker is paying $11, delivered to Conshohocken, for heavy melting steel, though $1 less than this is being paid for other plants in the same district. The volume of business is very small, the holidays having added to the dullness.

Buying prices per gross ton, New York, follow:

| | |
|---|---|
| Heavy melting steel | $6.50 to $7.50 |
| Rerolling rails | 10.00 to 10.50 |
| Relaying rails, nominal | 37.50 to 40.00 |
| Steel car axles | 10.50 to 11.00 |
| Iron car axles | 17.00 to 18.00 |
| No. 1 railroad wrought | 10.50 to 11.00 |
| Wrought iron track | 7.25 to 7.50 |
| Forge fire | 5.00 to 5.50 |
| No. 1 yard wrought, long | 8.50 to 9.00 |
| Light iron | 2.00 to 2.50 |
| Cast borings (clean) | 3.50 to 4.00 |
| Machine-shop turnings | 2.50 to 3.50 |
| Mixed borings and turnings | 2.50 to 3.00 |
| Iron and steel pipe (1 in. diam., not under 2 ft. long) | 7.00 to 7.50 |
| Stove plate | 9.00 to 9.50 |
| Locomotive grate bars | 8.50 to 9.00 |
| Malleable cast (railroad) | 8.00 to 8.50 |
| Old car wheels | 12.50 to 13.00 |

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton, follow:

| | |
|---|---|
| No. 1 machinery cast | $16.00 to $17.00 |
| No. 1 heavy cast (columns, building materials, etc.), cupola size | 14.00 to 15.00 |
| No. 1 heavy cast, not cupola size | 13.00 to 14.00 |
| No. 2 cast (radiators, cast boilers, etc.) | 9.50 to 10.50 |

**Cast-Iron Pipe.**—No new municipal business has developed, but orders from private companies are keeping the pipe foundries busy, most of them operating at over 50 per cent. Prices for carload lots have been lowered about $1 a ton and should a tonnage of desirable size, totaling 300 tons or more, be asked for, concessions would be made undoubtedly. Quotations for carload lots, f.o.b. New York, follow: 6-in. and larger, $52.30; 4-in. and 5-in., $57.30; 3-in., $67.30, with $4 additional for Class A and gas pipe.

## Cincinnati

CINCINNATI, July 5.

**Pig Iron.**—The past week was perhaps the quietest experienced in the market this year. Two sales of malleable, each of 200 tons, were reported, but the carload business was even scarcer than usual. A local agency reports the sale of 600 tons of Virginia iron to an Eastern melter. There are no inquiries of consequence before the trade, though the American Car & Foundry Co. has not yet closed on 700 tons for its Huntington, W. Va., plant. Prices of southern Ohio irons are off $1, sales having been made during the latter part of the week at $22 Ironton furnace. Chicago iron is now quoted in this territory at $20.50 to $21 for carloads, while Lake furnaces are reported to be making the same price. Southern irons are unchanged, $22 being the general quotation on carload business, but lower prices have been made on tonnages in the Southern territory. An inquiry for 500 tons of foundry coke from a melter in this territory has been received. This is the only evidence of any activity.

Based on freight rates of $4.50 from Birmingham and $2.52 from Ironton, we quote f.o.b. Cincinnati:

| | |
|---|---|
| Southern coke, sil. 1.75 to 2.25 (base) | $26.00 |
| Southern coke, sil. 2.25 to 2.75 (No. 2 soft) | 26.50 |
| Ohio silvery, 8 per cent sil. | 38.02 |
| Southern Ohio coke, sil. 1.75 to 2.25 (No. 2) | 24.52 |
| Basic, Northern | 23.52 |
| Malleable | 24.52 |

**Finished Material.**—The market is unusually quiet. Most steel buyers are of the opinion that lower prices will prevail in the immediate future and for that reason are holding off buying for other than their immediate and pressing needs. The opinion is becoming more general among steel men that a price reduction with some guarantees of permanency would go a long way towards stimulating business. Only small orders are being received, though occasionally 100-ton lots are inquired for. Some orders for light rails have been placed during the week and several car loads of bars have also been taken. Prices altogether depend on the ability of the buyers to drive a bargain, as there does not appear to be any recognized level. Two cents appears to be the general quotation on bars, shapes and plates, though occasionally one hears of 1.90c. being done. The business going, however, is so small, that it is doubtful whether this price has any basis in sales. Tonnage business, however, undoubtedly could be placed at better than 2c. The sheet market is unusually quiet, the recent reductions having failed to stimulate any business. Mill quotations are 2.65c. to 2.85c. on blue annealed, 3.50c. to 3.75c. on black and 4.50c. to 4.75c. on galvanized. There is very little activity in structural steel. No award has been made for the Ohio State University stadium project. It is expected that the building committee will consider the bids some time this week. There is a well defined rumor that this project will be postponed for a short time and that eventually new bids will be called for. The Kanawha & Michigan Railroad has asked bids on four plate girder spans, involving approximately 600 tons. The Middletown Hotel Co., Middletown, Ohio, will shortly ask bids on a 180-room hotel which will take about 450 tons of steel. A number of projects in which small tonnages of reinforcing bars will be required are also up for bids. Plant operations will not materially change next week. Most of the sheet mills operating in this territory will close down pending the outcome of negotiations with the Amalgamated Association at Columbus, commencing July 5.

**Warehouse Business.**—Local jobbers report the market as spotty. Some days will see a spurt in orders but the next two or three will bring practically no inquiries. Local jobbers have reduced the prices on cold rolled products to 4.25c. for rounds and 4.75c. for flats, squares and hexagons. No other price changes have been made.

Iron and steel bars, 3.35c. base; hoops and bands, 4.05c. base; shapes, 3.45c. base; plates, 3.45c. base; reinforcing bars, 3.42½c. base; cold rolled rounds, 1½ in. and larger, 4.25c.; under 1½ in. and flats, squares and hexagons, 4.75c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, 5c.; No. 28 galvanized sheets, 6.25c.; wire nails, $3.50 per keg base; No. 9 annealed wire, $3.60 per 100 lb.

**Tool Steel.**—Pick up business is about the only activity. Tool steel prices are about the same as previously noted, 18 per cent tungsten high speed steel being quoted at $1.00 per lb., base.

**Coke.**—Connellsville furnace coke is being quoted at $3, foundry at $4 to $5; Wise County furnace is quoted at $5, and foundry at $6. New River foundry is bringing $8.50.

**Old Material.**—There is very little activity. According to the local dealers, prices do not mean anything to-day, as there is practically no market. Some of them are taking advantage of the low prices to lay down yard stocks, but are not buying heavily. Consumers in this territory have practically abandoned the market, although occasionally a carload sale is made. Prices are quotably unchanged.

We quote dealers' buying prices:

| | *Per Gross Ton* | |
|---|---|---|
| Bundled sheets | $5.00 to | $7.00 |
| Iron rails | 11.00 to | 12.00 |
| Relaying rails, 50 lb. and up | 25.00 to | 26.00 |
| Rerolling steel rails | 10.00 to | 11.00 |
| Heavy melting steel | 8.50 to | 9.50 |
| Steel rails for melting | 9.00 to | 10.00 |
| Car wheels | 11.50 to | 12.50 |
| | *Per Net Ton* | |
| No. 1 railroad wrought | 8.50 to | 9.50 |
| Cast borings | 4.50 to | 5.00 |
| Steel turnings | 2.00 to | 2.50 |
| Railroad cast | 11.00 to | 12.00 |
| No. 1 machinery | 12.00 to | 13.00 |
| Burnt scrap | 6.50 to | 7.50 |
| Iron axles | 17.00 to | 17.50 |
| Locomotive tires (smooth inside) | 8.50 to | 9.50 |
| Pipes and flues | 6.00 to | 6.50 |

## San Francisco

SAN FRANCISCO, June 29.

**Pig Iron.**—Activity continues very much limited in the Coast market; in fact, the situation is prevailingly quiet, except for an occasional sale. Recently a comparatively small quantity of Belgian iron changed hands at $33, ex ship. The Southern Pacific Co. is in the market again for 800 tons of Nos. 2 and 3 grades. These are the only specific instances of business reported in two weeks. Belgian pig iron is being freely offered here from about $30 to $34, but little interest is taken. The Chinese iron situation is very dull. Foundry operations are constantly being restricted, which is reflected in the buying market. The proposed reduction of about 10 per cent in railroad freight rates from Eastern points is a topic of discussion on the Coast, but not much is expected of it.

**Coke.**—A few spot orders are being placed, which suggest some activity, at least. A little foreign tonnage, principally Australian, comes in occasionally for local smelters, but this is not material. The railroads are working on a reduction in freight rates, possibly around 33⅓ per cent.

**Cast Iron Pipe.**—This market presents an unsettled appearance, with opinion divided on the future trend of prices. At present business is light from all quarters. The city of Santa Monica received bids last week for 1000 tons of 4-6-8-10 and 12 in. pipe. Ft. Mason, San Francisco, opened bids for 142 tons of 8-in. pipe, and the Luke Field Distribution System, Honolulu, for 150 tons of 6-in. pipe. A small tonnage recently arrived on the steamer West Caddoa.

**Old Material.**—This market continues in a stagnant condition. Practically all the foundries of this district are closed or will be shortly. The Pacific Coast Steel Co. is planning to shut down its open hearth department July 1, having already a large supply of manufactured ingots on hand. Prices are nominal at about $24 for heavy melting steel and $10 for cast iron scrap.

**Finished Iron and Steel.**—With the building trades' lockout still persisting in San Francisco and environs, the situation is very quiet, as building construction work is about the only possibility in these times. Reports from the South indicate a falling off in new large structural jobs, which is the condition in northern California. At this time, there is a good deal of talk about bridging San Francisco Bay, thus connecting with the trans-bay cities. Ralph Modjeski and John Vipond Davies, distinguished bridge engineers, have arrived, and state that the project is plausible, but have not yet decided what kind of bridge will be most suitable. The steel interests are much interested, as a heavy tonnage is involved. The Columbia Steel Co. has decided to continue quoting $2.35, mill, California, on structural steel during the second quarter. The Southern Pacific Co. will be in the market for a quantity of miscellaneous material, including track spikes.

## Philadelphia

PHILADELPHIA, July 5.

The announcement to-day by the Bethlehem Steel Co. of a reduction in prices on finished and semi-finished steel was promptly followed by other independent steel companies, which notified their district sales agents to quote the same figures. The attitude of the Steel Corporation was not made known to consumers in this district to-day, but it was presumed that the leading interest would immediately name the same prices without any formal announcement. The new price schedule is a reduction of $4 a ton from the April schedule on plates, shapes and bars and semi-finished steel, 50c. per box on tin plate, $4 on blue annealed sheets and $5 per ton on black and galvanized sheets. The new prices on sheets are $9 and $10 per ton below the April schedule, a $5 reduction having been put into effect a little more than two weeks ago. Plates and shapes are now quoted by the leading independents at 2c., bars at 1.90c., tin plate at $5.75 per base box, rerolling billets, 4 x 4 in., $33, slabs, $34, sheet bars, $35, blue annealed sheets, 2.65c., black sheets, 3.50c. and galvanized sheets, 4.50c.

As the new prices became known only to-day, there has not been time to determine whether they will have any effect in releasing some of the tonnage which has been held back during the past few weeks when rumors of further price reductions have been widely circulated.

Holiday week has intensified the dullness of the local market, there being few inquiries or sales. Most of the Eastern steel mills are shut down because of lack of orders.

**Ferroalloys.**—There is no demand for ferromanganese or spiegeleisen and prices are nominal, $70 to $80, delivered, for ferromanganese, and $28 to $30, furnace, for spiegeleisen.

**Semi-Finished Steel.**—The new price for open hearth rerolling billets, as announced by the Bethlehem Steel Co. and also quoted now by other steel producers, is $33, Pittsburgh, with a freight rate to Philadelphia of $5.74. The differential of $5 for forging billets will probably be maintained, making forging quality $38, Pittsburgh. Slabs are now $34, sheet bars, $35 and skelp 2c. per lb., Pittsburgh.

**Pig Iron.**—It now develops that an eastern Pennsylvania furnace took 2500 tons of the foundry iron business recently placed by a New England melter. The price was about $20.50, furnace. A sale of 250 tons to a consumer in this district is reported to have been made at $23, base, furnace, but the bulk of the current business, which consists mainly of carload lots, is being done at $24 for No. 2 plain and $25 for No. 2 X, furnace. The furnaces in this district are trying to maintain these prices in the immediate Philadelphia territory, where competition from furnaces in other districts is not a factor, but in competitive territory lower furnace prices are being quoted to equalize the higher freight rates. There is an inquiry for 1000 tons of foundry iron from a radiator company. An inquiry for basic comes from the American Steel & Wire Co., Worcester, Mass., but no tonnage is named. The Harrisburg company, which a week or so ago bought 600 tons of basic, is negotiating for an additional lot of about 1000 tons. The Robesonia furnace was put in blast to-day (Tuesday) and will make low phosphorus iron to fill old contracts.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia, and include freight rates varying from 84 cents to $1.54 per gross ton:

| | |
|---|---|
| East. Pa. No. 2 plain, 1.75 to 2.25 sil. | $24.75 to $25.25 |
| East. Pa. No. 2X, 2.25 to 2.75 sil. | 25.50 to 26.25 |
| Virginia No. 2 plain, 1.75 to 2.25 sil. | 31.74 |
| Virginia No. 2X, 2.25 to 2.75 sil. | 32.99 |
| Basic deliv. Eastern Pa. | 23.50 to 24.00 |
| Gray forge | 23.00 to 23.50 |
| Standard low phos. (f.o.b. furnace) | 38.00 |
| Malleable | 26.00 to 27.00 |
| Copper bearing low phos. (f.o.b. furnace) | 35.00 |

**Plates.**—With plates obtainable from some mills at 1.90c., Pittsburgh, the reduction from 2.20c. to 2c., Pittsburgh, by those steel companies which have been holding to the former price since April, probably will not be influential in stimulating buying. We now quote universal and sheared plates at 1.90c. to 2c., Pittsburgh.

**Structural Shapes.**—The reduction from 2.20c. to 2c. on shapes may release some building work which has been held up for the past few weeks pending an expected adjustment of prices. A few structural jobs have been let within the past month or so on which fabricators have not covered for the steel. We quote plain material at 2c., Pittsburgh.

**Bars.**—A few sales of soft steel bars had been made at 1.90c., Pittsburgh, during the past two weeks; hence the formal reduction to that figure by the leading producers, following the lead of Bethlehem, meets this competition. Bar iron makers continue to quote 1.90c., Pittsburgh, but are doing practically no business.

**Sheets and Tin Plate.**—Scarcely had the reduction of $5 a ton on sheets been put into effect two weeks ago before some of the smaller mills began cutting the new prices. The further reductions put into effect to-day meet these low prices and for the moment, at least, put practically all mills on the same basis. Stock tin plate has been selling at $5.75, but now production tin plate is reduced to that price. Blue annealed sheets are now quoted at 2.65c., black at 3.50c. and galvanized at 4.50c., Pittsburgh.

**Warehouse Business.**—Local warehouses will probably put some price reductions into effect this week. Business continues slow.

**Coke.**—Furnace coke on contract is available at $3 per ton, Connellsville. Foundry coke contracts have been made at $4.50, Connellsville.

**Old Material.**—With most of the Eastern mills idle, the demand for scrap is even smaller than it has been for some weeks. Prices remain almost stationary, however, there being a little buying by brokers to apply against old orders. Some of the railroads are said to be holding their scrap for higher prices. We quote for delivery at consuming points in this district as follows:

| | |
|---|---|
| No. 1 heavy melting steel | $11.00 |
| Scrap rail | $10.00 to 10.50 |
| Steel rails, rerolling | 14.00 to 15.00 |
| No. 1 low phos., heavy 0.04 and under | 17.00 to 18.00 |
| Car wheels | 18.00 to 19.00 |
| No. 1 railroad wrought | 13.50 to 14.50 |
| No. 1 yard wrought | 12.50 to 13.00 |
| No. 1 forge fire | 10.00 to 10.50 |
| Bundled sheets (for steel works) | 8.00 to 8.50 |
| No. 1 busheling | 11.50 to 12.00 |
| No. 2 busheling | 10.00 to 11.00 |
| Turnings (short shoveling grade for blast furnace use) | 7.50 to 8.00 |
| Mixed borings and turnings (for blast furnace use) | 7.00 to 7.50 |
| Machine-shop turnings (for rolling mill and steel works use) | 7.50 to 8.00 |
| Heavy axle turnings (or equivalent) | 8.50 to 9.00 |
| Cast borings (for rolling mills) | 8.50 to 9.00 |
| Cast borings (for chemical plants) | No market |
| No. 1 cast | 16.00 to 17.00 |
| Railroad grate bars | 12.50 to 13.00 |
| Stove plate (for steel plant use) | 12.00 to 12.50 |
| Railroad malleable | 15.50 to 16.50 |
| Wrought iron and soft steel pipes and tubes (new specifications) | 11.50 to 12.00 |
| Iron car axles | No market |
| Steel car axles | No market |

## Chicago

CHICAGO, July 5.

The announcement of price reductions by the Bethlehem Steel Co. has failed to cause any stir in the market, as it merely gives the stamp of official recognition to quotations which have been common in this section for several weeks. Whether other independents will decide to adhere to these new prices in view of the losses incurred in taking business at lower quotations, is as yet uncertain. Although mill bookings are not improving, neither are they getting much worse. It is to be noted, however, that a large proportion of the current orders are for Government, State, municipal and county work. Railroad buying has not yet developed in the volume expected in some quarters. Perhaps the most striking inquiry is one for 100 to 130 locomotives from the Illinois Central. The Southern Pacific is in the market for 4800 kegs of spikes and 3300 kegs of track bolts, which are expected to go to the Colorado mills.

There has been no material change in average furnace and mill operations. The Illinois Steel Co. still has eight active blast furnaces and is producing steel at the rate of about 30 per cent of normal. The Inland Steel Co. is operating at close to 30 per cent of ingot capacity and has two out of three furnaces in blast. The Interstate Iron & Steel Co. was idle over the holidays but will resume at its East Chicago and South Chicago mills some time this week and at its steel works July 11. The Wisconsin Steel Works is idle except for one blast furnace. The Republic Iron & Steel Co. continues to operate its bar iron plant at East Chicago.

**Pig Iron.**—There has been little buying during the past week outside of carload lots, but it is apparent that $20, Chicago furnace, is the top of the market on No. 2 foundry, malleable and basic and it is not unlikely that $19.50 furnace, could be done on tonnage. There are few inquiries in the market, the principal ones being 200 tons of malleable wanted by the Link-Belt Co., 100 tons of malleable for a Wisconsin melter, 100 tons of low phosphorus for another Wisconsin foundry, and two 100-ton lots of foundry for Michigan delivery. The resale silvery which has been sold of late at several dollars under the furnace prices has been entirely disposed of. The disappearance of this material has failed to strengthen the market, however, because the demand for silvery has fallen off. Foundry operations in this territory probably do not average 25 per cent, as most plants are running, if at all, only two or three days a week. The blast furnace situation is unchanged. Local by-product foundry coke continues to be quoted at $11.25 delivered, Chicago foundry, while standard beehive foundry coke is bringing $4.50 to $4.75 oven, or $9.12 to $9.37 Chicago.

| | |
|---|---|
| Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago | $37.50 |
| Northern coke, No. 1, sil. 2.25 to 2.75 | 20.50 |
| Northern coke foundry, No. 2, sil. 1.75 to 2.25 | 20.00 |
| Northern high phos. | 20.00 |
| Southern foundry, sil. 1.75 to 2.25 | 27.67 |
| Malleable, not over 2.25 sil. | 20.00 |
| Basic | 20.00 |
| Low phos., Valley furnace, sil. 1 to 2 per cent, copper free | 35.00 |
| Low phos., f.o.b. Birmingham, sil. 1 to 2 per cent copper free | 31.00 |
| Silvery, sil. 8 per cent | 37.53 |

**Ferroalloys.**—The Crane Co. is inquiring for 200 tons of spiegeleisen. This alloy is slightly weaker, now being available at from $36 to $37 delivered.

We quote 78 to 82 per cent ferromanganese, $78 delivered; 50 per cent ferrosilicon, $80 delivered; spiegeleisen, 18 to 22 per cent, $36 to $37 delivered.

**Plates.**—The placing of oil storage tank and railroad car repair work has brought some respectable tonnages to the mills. Eighteen hundred eighty tons of plates for tanks to be built for the Midwest Refining Co. at Casper, Wyo., has been placed with a local mill. The steel for 600 gondola cars to be repaired for the Illinois Central by the General American Car Co. as noted last week, will amount to about 4000 tons of plates, shapes and bars which will also be furnished by a Chicago mill. A Chinese railway has let 300 box cars to the General American Car Co., requiring 2000 tons of steel which will be supplied by a local steel company. The Wabash has let repairs on 300 hopper cars to the Western Steel Car & Foundry Co. and the Missouri Pacific has awarded repairs on 500 box cars to the Sheffield Car & Equipment Co., Kansas City. The Wabash cars call for about 1500 tons of steel while the Missouri Pacific cars are wooden and will require little steel. In the East, the Western Maryland is in the market for repairs on 1000 gondola cars and is also asking for figures on 500 new hopper bodies. The price of 2c. Pittsburgh on tank plates announced by the Bethlehem company has made little impression on the market as 2c. and less have been done here for several weeks.

The mill quotation is 2c. Pittsburgh, the freight to Chicago being 38c. per 100 lb. Jobbers quote 3.23c. for plates out of stock.

**Cast-Iron Pipe.**—The market is quiet for the time being, possibly on account of the holidays, and no new inquiries have been reported. Detroit has not yet awarded the 16,000 tons on which it took bids recently, and Akron has not yet taken action on 6500 tons. There has been no disposition of the 200 tons wanted by Minneapolis, and Ft. Wayne, Ind., has rejected bids on 470 tons and will readvertise. Spring Wells, Mich., has awarded 667 tons to the United States Cast Iron Pipe & Foundry Co. The Detroit Board of Fire Commissioners has let 100 tons to the Flower Valve Co. of that city and Kansas City, Kan., has awarded 200 tons to the National Cast Iron Pipe Co. Fifty tons for Moweaqua, Ill., was also let to the National company.

We quote per net ton f.o.b. Chicago, ex-war tax as follows: Water pipe, 4-in., $52.10 to $57.10; 6-in. and above, $49.10 to $54.10; class A and gas pipe, $3 extra.

**Bolts and Nuts.**—The bolt and nut quotations published in this paragraph a week ago are adhered to by many companies, although there is a tendency on the part of few makers to quote f.o.b. works instead of f.o.b. Pittsburgh. Rivets are exceptionally weak, as low as $2.47½ having been quoted on large structurals. The largest recent purchase of bolts and nuts was by the Ford Motor Co. which was inquiring for 12,000,000 nuts, as well as bolts, and is understood to have bought all it asked for. The Ford company expects to maintain its present high rate of production throughout July, while the Dodge company has increased its output to 500 cars a day and some other Michigan plants are also on a fairly good operating basis. Most automotive plants still have large stocks and for a time will continue to buy in small quantities to fill in. A Western railroad is in the market for from 75 to 100 tons of large structural rivets.

Jobbers quote structural rivets, 4.53c.; boiler rivets, 4.63c.; machine bolts up to ¾ x 4 in., 60 per cent off; larger sizes, 55 off; carriage bolts up to ⅜ x 6 in., 55 off; larger sizes, 50 and 5 off; hot pressed nuts, square and hexagon tapped, $3 off; blank nuts, $3.25 off; coach or lag screws, gimlet points, square heads, 60 per cent off. Quantity extras are unchanged.

**Rails and Track Supplies.**—Inquiries and orders for track fastenings are scattering and small. Track spikes and bolts are weak and have been quoted recently at as low as 3c. and 4.10c., Pittsburgh, respectively. The Mobile & Ohio is in the market for 550 kegs of spikes.

Standard Bessemer rails, $45; open-hearth rails, $47; light rails rolled from new steel, 2.20c. f.o.b. makers' mills. Standard railroad spikes, 3.25c., Pittsburgh; track bolts with square nuts, 4.20c., Pittsburgh; steel tie plates, 2.50c., and steel angle bars, 2.75c., Pittsburgh and Chicago; tie plates, iron, 2.50c., f.o.b. makers' mills.

**Wire Products.**—The market remains quiet with no changes in the price situation. A few railroads have put out inquiries for nails and fair purchases of not only nails, but fencing and barbed wire, are expected to be made by the carriers in the near future. For mill prices, see finished iron and steel, f.o.b. Pittsburgh, page 47.

We quote warehouse prices, f.o.b. Chicago: No. 9 and heavier black annealed wire, $3.63 per 100 lb.; No. 9 and heavier bright basic wire, $3.78 per 100 lb.; common wire nails, $3.73 per 100 lb.; cement coated nails, $3.05 per keg.

**Structural Material.**—The market is unusually quiet. No new fabricating awards have been announced and no new prospects have developed. The new Bethlehem

price of 2c., Pittsburgh, on plain material seems to represent the ruling market.

The mill quotation is 2c., Pittsburgh, which takes a freight rate of 38c. per 100 lb. for Chicago delivery. Jobbers quote 3.23c. for materials out of warehouse.

**Sheets.**—The Bethlehem Steel Co.'s prices of 2.65c., Pittsburgh, on No. 10 blue annealed, 3.50c., Pittsburgh, on No. 28 black and 4.50c., Pittsburgh, on No. 28 galvanized represent the ruling market on those products in this section. Business is principally from domestic sources and is sufficient to keep about half of the capacity of one of the local mills in operation. Warehouse prices on sheets have been reduced again and Armco iron sheet have likewise been cut by the jobbers, No. 28 galvanized having been marked down to 7.35c. and No. 10 blue annealed to 4.63c. The new warehouse prices on steel sheets are given below.

Mill quotations are 3.50c. for No. 28 black; 2.65c. for No. 10 blue annealed and 4.50c. for No. 28 galvanized, these all being Pittsburgh prices, subject to a freight to Chicago of 38c. per 100 lb.

Jobbers quote: Chicago delivery out of stocks, No. 10 blue annealed, 3.68c.; No. 28 black, 4.90c.; No. 28 galvanized, 5.90c.

**Old Material.**—With the exception of the purchase of about 1000 tons of wrought by an iron mill, buying by consumers has been almost nil. Prices are still weak, but owing to the extreme dullness of the market there are few actual declines to record. Two important local mills have temporarily stopped all shipments of scrap on contract. The Pennsylvania, Southwestern Region, is offering 3500 tons, while the Lake Erie & Western and the Michigan Central have issued blind lists.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

| | |
|---|---|
| *Per Gross Ton* | |
| Iron rails | $15.50 to $16.00 |
| Relaying rails | 27.50 to 30.00 |
| Car wheels | 13.00 to 13.50 |
| Steel rails, rerolling | 12.50 to 13.00 |
| Steel rails, less than 3 ft | 11.50 to 12.00 |
| Heavy melting steel | 10.00 to 10.50 |
| Frogs, switches and guards, cut apart | 10.00 to 10.50 |
| Shoveling steel | 9.50 to 10.00 |
| Low phos. heavy melting steel | 13.00 to 13.50 |
| Drop forge flashings | 6.00 to 6.50 |
| Hydraulic compressed sheet | 6.50 to 7.00 |
| Axle turnings | 7.00 to 7.50 |
| *Per Net Ton* | |
| Iron angles and splice bars | 14.00 to 14.50 |
| Steel angle bars | 9.50 to 10.00 |
| Iron arch bars and transoms | 13.50 to 14.00 |
| Iron car axles | 18.00 to 18.50 |
| Steel car axles | 12.50 to 13.00 |
| No. 1 busheling | 8.50 to 9.00 |
| No. 2 busheling | 6.00 to 6.50 |
| Cut forge | 9.00 to 9.50 |
| Pipes and flues | 5.50 to 6.00 |
| No. 1 railroad wrought | 9.50 to 9.75 |
| No. 2 railroad wrought | 9.00 to 9.50 |
| Steel knuckles and couplers | 10.50 to 11.00 |
| Coil springs | 11.75 to 12.25 |
| No. 1 machinery cast | 12.50 to 13.00 |
| Low phos. punchings | 10.50 to 11.00 |
| Locomotive tires, smooth | 9.75 to 10.25 |
| Machine shop turnings | 3.50 to 4.00 |
| Cast borings | 5.00 to 5.50 |
| Stove plate | 11.50 to 12.00 |
| Grate bars | 10.00 to 10.50 |
| Brake shoes | 10.00 to 10.50 |
| Railroad malleable | 11.25 to 11.75 |
| Agricultural malleable | 11.25 to 11.75 |
| Country mixed | 7.00 to 7.50 |

**Bars.**—Aside from car repairs and a fair amount of reinforcing work, there is little demand for bars. Recent car repair awards are mentioned in the plate paragraph. The largest recent letting of reinforced work was 600 tons for a continuation school at Milwaukee, which went to the Worden-Allen Co. The Inland Steel Co. will furnish the steel. Other recent lettings include:

McElmore viaduct, Illinois Central, Memphis, 400 tons, to Corrugated Bar Co.

Carpenter Building, Des Moines, Iowa, 250 tons to the Paul J. Kalman Co.

Bridge, Racine, Wis., 120 tons, to Paul J. Kalman Co.

Among pending reinforcing jobs is 150 tons for State highway work at Wisconsin Rapids, Wis. It is not yet apparent whether the announcement of a price of 1.90c., Pittsburgh, on soft steel bars by the Bethlehem company will tend to stabilize the market. Lower prices have been named in this territory of late, in some cases as low as 1.825c., Pittsburgh. The railroads are commencing to buy bar iron a little more freely for repair purposes, but this far no individual order has exceeded 400 tons. Prices have weakened, the present ruling market being from 2.10c. to 2.20c., Chicago. The demand for rail carbon steel bars remains light and the price situation is unchanged.

Mill prices are: Mild steel bars, 1.85c. to 1.90c., Pittsburgh, taking a freight of 38c. per 100 lb.; common bar iron, 2.10c. to 2.20c., Chicago; rail carbon, 1.90c. to 2c., mill or Chicago.

Jobbers quote 3.13c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars is 4.63c. for rounds and 50c. extra for flats, squares and hexagons. Jobbers quote hard and medium deformed steel bars at 2.48c. base.

## Changes in By-Products Coke Corporation

At a recent meeting of the directors of the By-Products Coke Corporation held in Syracuse, N. Y., William L. Brown, chairman of the board, tendered his resignation. Mr. Brown resigned because of his desire to withdraw from some of his many business activities. H. H. S. Handy resigned as president and was elected chairman of the board to succeed Mr. Brown. Mr. Handy is also vice-president of the Allied Chemical & Dye Corporation, the requirements of that position demanding most of his time. It was the unanimous decision of the board to further concentrate the management of affairs in Chicago, where the coke oven plant and the blast furnace plant of the company are located. Clifford D. Caldwell of Chicago was the choice for president to succeed Mr. Handy. Mr. Caldwell has been associated with the By-Products Corporation for seven years, and for two years has been vice-president in direct charge of the company's activities in Chicago. E. L. Pierce and A. W. Hudson resigned as vice-presidents; M. D. Whitford as treasurer; H. H. Fisher and Seymour Wheeler as assistant treasurers; E. D. Winkworth as secretary; B. H. Handy and Donald S. Boynton as assistant secretaries; A. D. Allibone as auditor; V. N. Morey and H. W. Ostrander as assistant auditors. The successors to the above are all Chicagoans. James A. Galligan, formerly sales manager, has been appointed assistant to the president. The new treasurer is Donald S. Boynton and Seymour Wheeler has been elected secretary. Both of these men are also vice-presidents of Pickands, Brown & Co. Charles P. Fitzgerald, formerly cashier, is assistant secretary and assistant treasurer; and Benjamin L. Lynch, formerly assistant cashier, becomes auditor. The company's offices will continue in the McCormick Building, Chicago.

## Steel Corporation Case Reopened

WASHINGTON, July 5.—The Interstate Commerce Commission has entered an order reopening the case relating to the application of the United States Steel Corporation, its exporting subsidiary, the United States Steel Products Co., and subsidiary rail lines, in which request was made of the commission to determine whether the operation of two steamship lines, the New York & South America Line, and the Isthmian Steamship Lines through the Panama Canal, was in contravention of the law prohibiting railroad owned boat lines from using the canal or other waterways where such operation substantially reduces competition.

## Industrial Relations Conference

An industrial relations conference, authorized by Gov. William C. Sproul, Pennsylvania, is being arranged by Dr. Clifford B. Connelley, Commissioner of Department of Labor and Industry, Commonwealth of Pennsylvan to be held at Harrisburg, Pa., Oct. 24 to 27.

This conference will include the features of the welfare and efficiency conferences and safety congresses of other years. The main topics to be discussed will include Industrial Waste, Industrial Co-operation, Industrial Publicity, Industrial Education, Women and Children in Industry and the Medical Supervision of Industry.

# IRON AND INDUSTRIAL STOCKS

## Better Feeling in Banking Circles Evinced in Market for Securities

That a better feeling exists in leading banking circles of the country is evinced by the further average recovery in iron and industrial stocks the past week. The showing is all the more significant in view of the fact that little improvement is noted in the steel industry, and the fact that car loadings are once more on the decrease. Stocks presumably are inclined upward, because banks are beginning to discount commercial paper slightly more freely, the Administration is planning smaller operating expenses, and because of the clearing of the labor atmosphere in England. The proposed new Fordney tariff bill evidently is displeasing to certain oil and other interests, as is attested by the course of security values involved, but investors in a majority of steel and industrial stocks are satisfied with most of the protective features as they line up today. With the recovery in stock values has come less desire to liquidadte holdings by those who had become disturbed over the general business situation.

With this resumption of confidence, railroads show indications of becoming interested in new equipment and car repair work, realizing as they must there will be a severe strain on carrying capacities when the movements of crops begin. Shares of equipment companies have responded to the prospect of business. In certain quarters, at least, buyers are beginning to believe iron and steel quotations are at or near the bottom, which possibly acounts for the recent better character of buying of steel shares. Late developments in the copper metal market have not been sufficiently reassuring to result in very much higher prices for stocks. The fabric markets seem established on a stable basis, although it is reported the margin of manufacturing profit is small. Merchants are placing orders for fall merchandise, another sign, according to bankers, that we can reasonably expect a slow but steady recovery in general business from now on.

The range of prices on active iron and industrial stocks from Monday of last week to Tuesday of this week was as follows:

| | | | |
|---|---|---|---|
| Allis-Chalm. com. | 30¾ - 31⅝ | Midvale Steel.... | 23 - 24 |
| Am. Can com... | 25½ - 26⅞ | Nat.-Acme ..... | 15 - 15¾ |
| Am. Can pf..... | 76¾ - 78 | Nat. E. & S. com. | 42½ - 44½ |
| Am. C. & F. com. | 119½-124½ | N. Y. Air. Brake | 56 - 57¼ |
| Am. C. & F. pf.. | 108¼-109¾ | Nova Scotia Steel | 22 - 22¼ |
| Am. Loco. com.. | 78½ - 81½ | Pitts. Steel pf... .. | - 80 |
| Am. Rad. com.. .. | - 68½ | Pressed Stl. com. | 67⅜ - 69 |
| Am. Stl. F. com. | 25 - 26⅜ | Ry. Stl. S. com. | 74 - 81 |
| Bald. Loco. com. | 66¼ - 72 | Replogle Steel .. .. | - 20¼ |
| Bald. Loco. pf... | 95 - 97 | Republic, com. .. | 43½ - 47 |
| Beth. Steel com.. | 45 - 45¾ | Republic, pf. ... .. | - 80 |
| Beth. Stl. Cl. B.. | 44⅛ - 47⅞ | Sloss com. ..... | 32⅛ - 32½ |
| Beth. Stl. 8% pf. | 96¼ - 97 | Sloss pf. ..... .. | - 68¼ |
| Chic. Pneu. Tool | 49 - 50 | Superior Steel... .. | - 29 |
| Cruc. Steel com.. | 55 - 59¾ | Sup. Steel 1st pf. .. | - 92¼ |
| Cruc. Steel pf... .. | - 77 | Un. Alloy Steel.. | 22 - 23½ |
| Gen. Electric ....126 | -128¾ | U. S. Pipe com.. | 13⅛ - 14½ |
| Gt. No. Ore Cert. | 26½ - 27 | U. S. Pipe pf.... .. | - 43¼ |
| Gulf States Steel | 30 - 33 | U. S. Steel com.. | 72½ - 75 |
| Int. Har. com... | 79 - 84 | U. S. Steel pf... | 105¾-109½ |
| Int. Har. pf.... .. | -100⅛ | Vanadium Steel. | 27 - 29⅜ |
| Lack. Steel .... | 35⅝ - 39⅜ | West'ghouse Elec. | 43½ - 45 |

## United States Steel Stockholders

The largest number of holders of common stock of the United States Steel Corporation on record in the company's history appeared when the books were closed for the June dividend. The number, 105,310, compared with 104,376 in March. Preferred stockholders at the closing of the books for the May dividend totalled 81,614, compared with 81,462 in February.

Exclusive of duplication the holders of common and preferred combined now number approximately 165,000. The gain in the last year has been 18,081, and since 1916, 67,590, or nearly 180 per cent. The number on Dec. 31, 1916, was 37,720.

## Fiscal Year of the American Car & Foundry Co.

The American Car & Foundry Co. earned $8,551,000 net in the fiscal year ended April 30, 1921, compared with $10,401,000 for the previous year. This was equivalent to $21.50 a share on the common stock, compared with $27.67 in 1920. The orders on hand at the end of the year amounted to $30,000,000. The company had to carry its customers to an extent much greater than normal, due partly to the fact that the Railroad Administration held back payments to the railroads; accordingly, accounts and notes receivable in the 1921 fiscal year amounted to $28,302,000, compared with $8,574,000 the year before.

Materials on hand inventoried at cost or less and not in excess of present market prices, amounted to $14,010,000 this fiscal year, compared with $15,007,000 the year previous. During the year the company sold $29,000,000 of United States certificates of indebtedness, Liberty bonds and Victory notes, reducing the amount held at the end of the year to $5,009,000.

Contemplated car repair work did not develop as the railroads placed damaged cars into storage rather than into repair shops. Accordingly only one-fifth of the profits of the company was realized from car repair work. A greater part of the profit came from the manufacture and sale of miscellaneous products.

President W. H. Woodin has expressed doubt as to the success of developing broader foreign markets without Government aid. He also realizes the keen competition with Europe.

## Industrial Finances, Etc.

The voting trust agreement of the Penn Seaboard Steel Corporation has been extended five years from June 26, 1921.

A creditors' petition has been filed against the Phoenix Mfg. Corporation, Lowell, Mass., automatic firearms, by creditors with claims of $2,534.

The National Scale Co., Chicopee Falls, Mass., has filed a voluntary petition in bankruptcy in the United States District Court, Boston, giving liabilities of $172,743 and assets of $152,561.

Stockholders of the Hydraulic Steel Co. have rejected plans proposing a merger of the company with the Detroit Pressed Steel Co. The stockholders also have decided to drop a contemplated issue of preferred stock and to relinquish an option on the Detroit concern.

The Graton & Knight Mfg. Co., Worcester, Mass., leather belting, etc., has filed a statement of its financial condition as of March 23, 1921, with the secretary of Massachusetts which shows total assets and liabilities of $21,029,867, as against $23,114,783 on Dec. 31, 1919. The two most important changes in the balance sheet are an increase of $1,802,400 in the capital stock and a drop from $1,249,947 to $62,739 in the reserves account.

Stockholders of the Standard Parts Co., Cleveland, now in the hands of a receiver, have petitioned the court to continue the receivership instead of accepting the proposed reorganization suggested by creditors. The company in March had $600,000 business, in April and May $1,000,000 each, in June $600,000. All receivers' debts have been paid except current, and the company has $1,000,000 in the bank. Frank A. Scott, Warner & Swasey Co., machine tools, is receiver.

A voluntary petition in bankruptcy has been filed by the Springfield Automatic Screw Machinery Corporation, Springfield, Mass., citing liabilities of $374,111 and assets of $290,337.

Directors of the Wheeling Steel Corporation voted to pass the quarterly dividend on the common stock at a meeting in Wheeling, June 29. In explanation of this action the following statement was given out: "The question of a dividend on the common stock was given careful consideration, and in view of the present very unsatisfactory condition of the steel industry and the rather gloomy prospects for the immediate future, together with the fact that the Corporation has not shown a profit in any month this year, the directors decided it unwise to make a cash dividend on the common stock at this time."

The Wickwire Spencer Steel Corporation has filed with the Massachusetts commissioner of corporations a statement of its financial condition as of Dec. 31, last, which shows total assets and liabilities of $39,009,037, contrasted with $18,415,641 at the close of 1919.

A. Judson Brown & Co., Inc., New York, has been incorporated with a capital of $50,000 by E. R., A. J., and A. Judson Brown, to manufacture marine machinery and parts. I. Katz, 52 Broadway, represents the company.

The Terry Kitchen Device Co., New York, has been incorporated with a capital of $600,000 by E. B. and N. E. Terry and A. DeMatteteis, to manufacture metal specialties for domestic service. It is represented by E. P. Yaselli, 160 Broadway.

The Wollaston Foundry Co., Wollaston, Quincy, Mass., has issued an additional $20,000 of stock. George D. Woodbury is president, and Leonard W. Newell, treasurer.

The Hanna Furnace Co. is issuing $4,000,000 in first mortgage 8 per cent sinking fund gold bonds, due June 1, 1926, five years from date of issue.

# Metal Schedule of the New Tariff Bill

(*Continued from page 22*)

of any other material, if less than 4 in. in length, exclusive of handle, 3c. *each;* if 4 in. in length or over, exclusive of handle, 8 cents each; and in addition thereto, on all of the foregoing, 35 *per cent* ad valorem (25 to 30 per cent) [not under 40 per cent]: *Provided,* That all articles specified in this paragraph when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk legibly and indelibly upon the blade in a place that shall not be covered.

356. Planing-machine knives, tannery and leather knives, tobacco knives, paper and pulp mill knives, roll bars, bed plates, and all other stock-treating parts for pulp and paper machinery, shear blades, circular cloth cutters, circular cork cutters, circular cigarette cutters, meat slicing cutters, and all other cutting knives and blades used in power or hand machines, 35 *per cent* ad valorem.

357. Steel laid scissors and shears, and blades for the same, finished or unfinished (30 per cent), 10c. *each and* 30 *per cent* ad valorem; all other scissors and shears, and blades for the same, finished or unfinished, valued at not more than 50c. per dozen, 3c. *each and* 35 *per cent* ad valorem; valued at more than 50c. and not more than $1.75 per dozen, 15c. *each and* 35 *per cent* ad valorem; valued at more than $1.75 per dozen, 20c. *each and* 35 *per cent* ad valorem (30 per cent) [15c. per dozen and 15 per cent to 75c. per dozen and 25 per cent]: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the outside of the blade between the screw or rivet and the handle.

358. Razors, finished or unfinished, valued at less than $2 per dozen, 10c. *each;* valued at $2 and less than $3 per dozen, 12c. *each;* valued at $3 and less than $4 per dozen, 16c. *each;* valued at $4 or more per dozen, 20c. *each;* and in addition thereto, on all of the foregoing, 30 *per cent* ad valorem (35 to 55 per cent) [35 per cent up to 15c. each and 35 per cent]: Provided, That handles, unfinished razors and blades (except for safety razors), safety razors, and safety-razor handles and frames, shall pay no less duty than that imposed on finished razors valued at $2 per dozen: Provided further, That finished or unfinished blades for safety razors shall pay a duty of 1c. *each and* 30 *per cent* ad valorem: Provided further, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the blade or shank or tang of each and every blade and on safety razors and parts thereof.

359. Surgical and dental instruments, or parts thereof, composed wholly or in part of iron, steel, copper, brass, nickel, aluminum, or other metal, finished or unfinished, valued at not more than $5 per dozen, 60c. *per dozen;* valued at more than $5 per dozen, 12c. *per dozen* for each $1 per dozen of such value; and in addition thereto, on all of the foregoing, 35 *per cent* ad valorem (20 per cent) [45 per cent]: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the country of origin die-sunk conspicuously and indelibly on the outside, or if a jointed instrument on the outside when closed.

360. Philosophical, scientific, and laboratory instruments, apparatus, utensils, appliances (including drawing, surveying, and mathematical instruments), and parts thereof, composed wholly or in chief value of metal, and not plated with gold, silver, or platinum, finished or unfinished, not specially provided for, 40 *per cent* ad valorem (20 per cent) [45 per cent]: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the country of origin die-sunk conspicuously and indelibly on the outside, or if a jointed instrument on the outside when closed.

361. Pliers, pincers, and nippers of all kinds, finished or unfinished, 4 in. in length and under, 8c. *each;* over 4 in. and not over 6 in. in length, 10c. *each;* over 6 in. in length, 12c. *each;* and in addition thereto, on all of the foregoing, 25 *per cent* ad valorem (30 per cent) [8c. per lb. and 40 per cent]: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the outside of the joint.

362. Files, file blanks, rasps, and floats of all cuts and kinds, 2½ in. in length and under, 25c. *per dozen;* over 2½ and not over 4½ in. in length, 47½c. *per dozen;* over 4½ and under 7 in. in length, 62½c. *per dozen;* 7 in. in length and over, 77½c. *per dozen.*

363. Sword blades, and swords and side arms, irrespective of quality or use, wholly or in part of metal, 40 *per cent* ad valorem (30 per cent) [50 per cent].

364. Muzzle-loading muskets, shotguns, rifles, and parts thereof, 20 *per cent* ad valorem (15 per cent) [25 per cent].

365. Double and single-barreled sporting breech-loading and repeating shotguns, rifles, and combination shotguns and rifles, valued at not more than $5 each, $1.50 *each;* valued at more than $5 and not more than $10 each, $4 *each;* valued at more than $10 and not more than $25 each, $6 *each;* valued at more than $25 each, $10 *each;* and in addition thereto, on all of the foregoing, 35 *per cent* ad valorem; barrels for sporting breech-loading shotguns and rifles, further advanced in manufacture than rough bored only, $4 *each;* stocks for sporting breech-loading shotguns and rifles, wholly or partly manufactured, $5 *each;* and in addition thereto, on all of the foregoing, 40 *per cent* ad valorem (35 per cent) [75c. each and 25 per cent extra to $6 each and 35 per cent extra]; on all parts of such guns or rifles, and fittings for such stocks or barrels, finished or unfinished, 45 *per cent* ad valorem (35 per cent): Provided, That all sporting breech-loading shotguns and rifles imported without a lock or locks or other fittings shall be subject to a duty of $10 *each and* 40 *per cent* ad valorem.

366. Pistols: Automatic, magazine, or revolving, and parts thereof and fittings therefor, valued at not more than $4 each, $1.25 *each;* valued at more than $4 and not more than $8 each, $2.50 *each;* valued at more than $8 each, $3.50 *each;* and in addition thereto, on all of the foregoing, 25 *per cent* ad valorem (35 per cent) [75c. each and 25 per cent].

367. Watch movements, whether imported in cases or otherwise, assembled or knocked down for reassembling, if having less than seven jewels, 75c. *each* [70c.]; having seven and not more than eleven jewels, $1.25 *each* [$1.35]; having more than eleven and not more than fifteen jewels, $2 *each* [$1.85]; having more than fifteen and not more than seventeen jewels, unadjusted, $2.75 *each* [$1.25 and 25 per cent]; having seventeen jewels and adjusted to temperature, $3.50 *each;* having seventeen jewels and adjusted to three positions, $4.75 *each;* having seventeen jewels and adjusted to five positions, $6.50 *each;* having more than seventeen jewels, adjusted or unadjusted, $10.75 *each* (all the above, 30 per cent); watchcases and parts of watches, chronometers, box or ship, and parts thereof, 35 *per cent* ad valorem (30 per cent) [40 per cent]; all jewels for use in the manufacture of watches, clocks, meters, or compasses, 10 *per cent* ad valorem (10 per cent); enameled dials for watches or other instruments, 3c. *per dial and* 35 *per cent* ad valorem: Provided, That all watch and clock dials, whether attached to movements or not, when imported shall have indelibly painted or printed thereon the name of the country of origin, and that all watch movements and plates, lever clock movements with jewels in the escapement, assembled or knocked down for reassembling, and cases shall have the name of the manufacturer and the country of manufacture cut, engraved, or die-sunk conspicuously and indelibly on the plate of the movement and the inside of the case respectively, and the movement and plates shall also have marked thereon by one of the methods indicated the number of jewels and adjustments, said numbers to be expressed both in words and in Arabic numerals, and if the movement is not adjusted, the word "unadjusted" shall be marked thereon by one of the methods indicated, and none of the aforesaid articles shall be delivered to the importer unless marked in exact conformity to this direction: Provided further, That only the number of the jewels which serve a mechanical purpose as frictional bearings shall be marked as herein provided.

368. Clocks and clock movements, and clockwork mechanisms, cased or uncased, whether imported complete or in parts, and any device or mechanism having an essential operating feature intended for measuring time, or the flowage of water, gas, electricity, or similar uses, or for regulating or controlling the speed of arbors, drums, disks, or similar uses, or for recording, indicating, or performing any operation or function at a predetermined time or times, any of the foregoing whether wholly or partly complete or knocked down for reassembling (in which condition they shall be appraised at the valuation of the complete article); cases and casings for clockwork mechanisms imported separately; all the foregoing, 35 *per cent* ad valorem (30 per cent) [40 per cent]; and in addition thereto, upon any of the foregoing articles or parts thereof, having jewels, but not more than two jewels, in the escapement, $1 *each;* having more than two but not more than four jewels, $2 *each;* having more than four jewels, $4 *each;* if without jewels in the escapement and valued at not over $1.10 each, 35c. *each;* valued at more than $1.10 and not more than $2.25 each, 70c. *each;* valued at more than $2.25 but not more than $5 each, $1 *each;* valued at more than $5 but not more than $10 each, $2 *each;* valued at more than $10 each, $3 *each;* all parts and materials for use in any of the foregoing if imported separately, and not

specially provided for, 40 *per cent* ad valorem: Provided, That all dials and the front or back plate of the movement frame of any of the foregoing when imported shall have the name of the maker, the country where manufactured, and the number of jewels, if any, indelibly stamped on the most visible part of same; but if such markings are in whole or in part sufficiently similar to the trade name of an established American manufacturer as to be liable to deceive the user in the United States, entry thereof shall be denied if such trade name or trade-mark has been placed on file with the collector of customs.

369. Automobiles, automobile bodies, automobile chassis, and parts of automobiles, not including tires, 25 *per cent* ad valorem (30 per cent under $2,000; above $2,000, 45 per cent; parts, 30 per cent): Provided, That if there be imported into the United States any of the foregoing articles manufactured in or exported from any country which imposes a duty greater than 25 per cent ad valorem upon similar articles exported from the United States, there shall be levied, paid, and collected upon such articles a duty equal to the duty imposed by such country upon such articles imported from the United States, but not to exceed in any case 50 per cent ad valorem.

370. Airplanes, hydroplanes, motor boats, and parts thereof, 30 *per cent* ad valorem.

371. Bicycles, motor cycles, and finished parts of bicycles and motor cycles, 30 *per cent* ad valorem (25 per cent) [45 per cent]: Provided, That if there be imported into the United States any of the foregoing articles manufactured in or exported from any country which imposes a duty greater than 30 per cent ad valorem upon similar articles exported from the United States, there shall be levied, paid, and collected upon such articles a duty equal to the duty imposed by such country upon such articles imported from the United States, but not to exceed in any case 50 *per cent* ad valorem.

372. Steam engines (15 per cent) [30 per cent] and steam locomotives (15 per cent) [45 per cent], 15 *per cent* ad valorem; machine tools and parts of machine tools (15 per cent) [30 per cent], embroidery machines, including shuttles for sewing and embroidery machines, lace-making machines, machines for making lace curtains, nets and nettings (25 per cent) [45 per cent], and all other machines or parts thereof, finished or unfinished, not especially provided for, 35 *per cent* ad valorem: Provided, That machine tools as used in this paragraph shall be held to mean any machine operating other than by hand power which employs a tool for work on metal.

373. Shovels, spades, scoops, and drainage tools, and parts thereof, composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, aluminum, or other metal, whether partly or wholly manufactured, 25 *per cent* ad valorem (20 per cent) [45 per cent].

374. Aluminum, aluminum scrap, and alloys of any kind in which aluminum is the component material of chief value, in crude form, 5c. *per lb.* (2c.) [7c.]; in plates, sheets, bars, rods, circles, disks, blanks, strips, rectangles, and squares, 9c. *per lb.* (3½c.) [11c.].

375. Metallic magnesium and metallic magnesium scrap, $1 *per lb.*; magnesium alloys, powder, sheets, ribbons, tubing, wire, and all other articles, wares, or manufactures of magnesium, not specially provided for, $1 *per lb.* on the metallic magnesium content and 20 *per cent* ad valorem (10 per cent) [20 per cent].

376. Antimony, as regulus or metal, 1½c. *per lb.* (10 per cent) [1½c. per lb.].

377. German silver, unmanufactured, 20 *per cent* ad valorem (15 per cent) [25 per cent].

378. Copper wire not coated or covered, and copper wire and copper-clad wire, coated with tin, 1½c. *per lb.*; copper in rolls, rods, or sheets, 2½c. *per lb.* (5 per cent) [2½c. per lb.]; copper engravers' plates, not ground, and seamless copper tubes and tubing, 7c. *per lb.*; copper engravers' plates, ground, and brazed copper tubes, 11c. *per lb.*; brass wire, brass rods, sheet brass, brass plates, bars, and strips, Muntz or yellow metal sheets, sheathing, bolts, piston rods and shafting, 4c. *per lb;* seamless brass tubes and tubing, 8c. *per lb.;* brazed brass tubes, brass angles and channels, 12c. *per lb.;* bronze wire, bronze rods and sheets, 4c. *per lb.;* bronze tubes, 8c. *per lb.* (20 per cent) [45 per cent].

379. Bronze powder, powdered tin, brocades flitters, and metallics, 16c. *per lb.* (25 per cent) [12c. per lb.]; bronze, or Dutch metal or aluminum, in leaf, 8c. *per* 100 *leaves* (25 per cent) [6c. per 100 leaves]. The foregoing rate applies to leaf not exceeding in size the equivalent of 5½ by 5½ in.; additional duties in the same proportion shall be assessed on leaf exceeding in size said equivalent.

380. Gold leaf, 50c. *per* 100 *leaves.* The foregoing rate applies to leaf not exceeding in size the equivalent of 3⅜ by 3⅜ in.; additional duties in the same proportion shall be assessed on leaf exceeding in size said equivalent (35 per cent) [35c. per 100 leaves upward].

381. Silver leaf, 5c. *per* 100 *leaves.* (30 per cent) [10c. per 100 leaves].

382. Tinsel wire, lame or lahn, made wholly or in chief value of gold, silver or other metal, 10c. *per lb.* and 30 *per cent* ad valorem (6 per cent) [5c. per lb.] bullions and metal threads made wholly or in chief value of tinsel wire, lame or lahn, 10c. *per lb.* and 35 *per cent* ad valorem (25 per cent) [5c. per lb. and 30 per cent.]; ribbons, beltings, toys, and other articles made wholly or in chief value of tinsel wire, lame or lahn, and India rubber, bullions, or metal threads, not specially provided for, 45 *per cent* ad valorem (40 per cent) [15c. per lb. and 60 per cent]; woven fabrics, fringes, and tassels, made of any of the foregoing, 55 *per cent* ad valorem (40 per cent) [15c. per lb. and 60 per cent].

383. Quicksilver, 7c. *per lb.* (10 per cent) [7c. per lb.]; Provided, That the flasks, bottles, or other vessels in which quicksilver is imported shall be subject to the same rate of duty as they would be subjected to if imported empty.

384. New types, 15 *per cent* (15 per cent) [1½c. per lb. on the lead contained therein].

385. Nickel, nickel oxide, alloy of any kind in which nickel is the component material of chief value, in pigs or ingots, or similar forms, 5c. *per lb.* [6c. per lb.]; in bars, rods, plates, sheets, strips, strands, anodes, or electrodes, 30 per cent ad valorem (sheets or strips 20 per cent; all other 10 per cent) [sheets or strips 35 per cent; bars, rods, plates, 35 per cent.]

386. Tin in bars, blocks or pigs, and grain or granulated and scrap tin, 2c. *per lb.* (free list).

387. Bottle caps of metal, collapsible tubes and sprinkler tops, if not decorated, colored, waxed, lacquered, enameled, lithographed, electroplated, or embossed in color, 25 *per cent* ad valorem (30 per cent) [½c. per lb.]; if decorated, colored, waxed, lacquered, enameled, lithographed, electroplated, or embossed in color, 40 *per cent* ad valorem (40 per cent).

388. Lead-bearing ores and mattes of all kinds, 1½c. *per lb.* on the lead contained therein (¾c. per lb.) [1½c. per lb.]: Provided, That such duty shall not be applied to the lead contained in copper mattes until after two thousand tons of such lead shall have been imported in any one year, to be allocated under rules and regulations to be prescribed by the Secretary of the Treasury. [Here follows the usual administration provision.—EDITOR.]

389. Lead bullion or base bullion, lead in pigs and bars [2⅛c. per lb.], lead dross [1½c. per lb.], reclaimed lead, scrap lead, antimonial lead, antimonial scrap lead, type metal, Babbitt metal, solder, all alloys or combinations of lead not specially provided for, 2⅛c. *per lb.* on the lead contained therein [2⅛c. per lb.]; lead in sheets, pipe, shot, glaziers' lead, and lead wire, lead in any article or material not specially provided for, 2⅝c. *per lb.* (25 per cent) [2⅝c. per lb.].

390. Zinc-bearing ore of all kinds, including calamine containing less than 10 per cent of zinc, shall be admitted free of duty; containing 10 per cent or more of zinc and less than 20 per cent, one-fourth of 1c. *per lb.*, on the zinc contained therein; containing 20 per cent or more of zinc and less than 25 per cent, one-half of 1c. *per lb.*, on the zinc contained therein; containing 25 per cent of zinc, or more, 1c. *per lb.* on the zinc contained therein: [Here follows the administrative provision.—EDITOR.] Provided, That for a period of two years beginning on the day following the enactment of this act the rate of duty on zinc-bearing ores of all kinds, including calamine, containing 10 per cent or more of zinc, shall be as follows: If containing 10 per cent or more of zinc and less than 20 per cent, ½c. *per lb.* on the zinc contained therein; containing 20 per cent or more of zinc and less than 25 per cent, 1c. *per lb.* on the zinc contained therein; containing 25 per cent of zinc or more, 1½c. *per lb.* on the zinc contained therein.

391. Zinc in blocks or pigs and zinc dust, 1⅜c. *per lb.* [1⅝c. per lb.)]; in sheets, 1⅝c. *per lb.*, [1⅝c. per lb.]; in sheets coated or plated with nickel or other metal, or solutions, 1¾c. *per lb.* [1¾c. per lb.]; old and worn-out, fit only to be remanufactured, 1c. *per lb.* (15 per cent) [1c. per lb.]: Provided, That for a period of two years beginning on the day following the enactment of this Act the rates of duty shall be as follows: On zinc in blocks, pigs, or slabs, and old and worn-out zinc fit only to be remanufactured, 2c. *per lb.;* zinc in sheets, plates, strips, or coils, plated with nickel or other base metals, or in fabricated form, and zinc dust, 2¾c. *per lb.*

392. Print rollers and print blocks used in printing, stamping, or cutting designs for wall or crêpe paper, linoleum, oilcloth, or other material, not specially provided for, composed wholly or in chief value of iron, steel, copper, brass, or any other metal, 30 *per cent* ad valorem (20 per cent) [45 per cent].

393. Articles or wares not specially provided for, if composed wholly or in chief value of platinum, gold, or silver, and articles or wares plated with platinum, gold, or silver, or colored with gold lacquer, whether partly or wholly

manufactured, 45 *per cent* ad valorem (50 per cent) [45 per cent]; if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, but not plated with platinum, gold, or silver, or colored with gold lacquer, whether partly or wholly manufactured, 35 *per cent* ad valorem (20 per cent) [45 per cent].

394. No allowance or reduction of duties for partial loss or damage in consequence of rust or of discoloration shall be made upon any description of iron or steel, or upon any article wholly or partly manufactured of iron or steel, or upon any manufacture of iron or steel.

## Free List

1504. Agricultural implements: Plows, tooth and disk harrows, headers, harvesters, reapers, agricultural drills and planters, mowers, horserakes, cultivators, thrashing machines, cotton gins, machinery for use in the manufacture of sugar, wagons and carts, and all other agricultural implements of any kind and description, whether specifically mentioned herein or not, whether in whole or in parts, including repair parts.

1509. Antimony ore and needle or liquated antimony, but only as to the antimony content.

1514. Articles the growth, produce, or manufacture of the United States, when returned after having been exported, without having been advanced in value or improved in condition by any process of manufacture or other means if imported by or for the account of the person who exported them from the United States; steel boxes, casks, barrels, carboys, bags, and other containers or coverings of American manufacture exported filled with American products, or exported empty and returned filled with foreign products, including shooks and staves when returned as barrels or boxes; also quicksilver flasks or bottles, iron or steel drums of either domestic or foreign manufacture, used for the shipment of acids, or other chemicals, which shall have been actually exported from the United States; but proof of the identity of such articles shall be made, under general regulations to be prescribed by the Secretary of the Treasury, but the exemption of bags from duty shall apply only to such domestic bags as may be imported by the exporter thereof, and if any such articles are subject to internal-revenue tax at the time of exportation, such tax shall be proved to have been paid before exportation and not refunded; photographic dry plates and films of American manufacture (except moving-picture films), exposed abroad, whether developed or not, and photographic films light struck or otherwise damaged, or worn out, so as to be unsuitable for any other purpose than the recovery of the constituent materials, provided the basic films are of American manufacture, but proof of the identity of such articles shall be made under general regulations to be prescribed by the Secretary of the Treasury; articles exported from the United States for repairs may be returned upon payment of a duty upon the value of the repairs at the rate at which the article itself would be subject if imported, under conditions and regulations to be prescribed by the Secretary of the Treasury: Provided, That this paragraph shall not apply to any article upon which an allowance of drawback has been made, the reimportation of which is hereby prohibited except upon payment of duties equal to the drawbacks allowed; or to any article manufactured in bonded warehouse and exported under any provision of law.

1519. Bells, broken, and bell metal, broken and fit only to be remanufactured. (Free list).

1534. Brass, old brass, clippings from brass or Dutch metal, all the foregoing, fit only for remanufacture. (Free list).

1541. Cash registers, linotype and all typesetting machines, sewing machines, typewriters [all 30 per cent], shoe machinery [45 per cent], sand-blast machines, sludge machines, and tar and oil spreading machines [all 45 per cent], used in the construction and maintenance of roads and in improving them by the use of road preservatives; all the foregoing whether in whole or in parts, including repair parts. (All on free list).

1544. Chromite or chrome ore. (Free list).

1545. Coal, anthracite, bituminous [45c. per ton], culm, slack, and shale; coke [20 per cent]; compositions used for fuel in which coal or coal dust is the component material of chief value, whether in briquets or other form [20 per cent]. (All above on free list). Provided, That when any country, dependency, or other subdivision of government imposes a duty on such articles imported from the United States, an equal duty shall be imposed upon such articles coming into the United States from such country.

1547. Cobalt and cobalt ore.

1552. Composition metal of which copper is the component material of chief value, not specially provided for.

1553. Copper ore; regulus of, and black or coarse copper, and copper cement; old copper, fit only for remanufacture, copper scale, clippings from new copper, and copper in plates, bars, ingots, or pigs, not manufactured or specially provided for.

1559. Metallic mineral substances in a crude state, and metals unwrought, whether capable of being wrought or not, not specially provided for.

1565. Emery ore and corundum ore.

1589. Iridium, osmium, paladium, rhodium, and ruthenium and native combinations thereof with one another or with platinum.

1590. Iron ore, including manganiferous iron ore, and the dross or residuum from burnt pyrites. (Free list). [15c. per ton].

1613. Minerals, crude, or not advanced in value or condition by refining or grinding, or by other process of manufacture, not specially provided for.

1617. Needles, hand sewing and darning.

1627. Ores of gold, silver, or nickel, and nickel matte; ores of the platinum metals; sweepings of gold and silver.

1633. Platinum, unmanufactured or in ingots, bars, plates, sheets, wire, sponge, or scrap.

1647. Shotgun barrels, in single tubes, forged, rough bored.

1669. Tin ore or cassiterite, and black oxide of tin: Provided, That there shall be imposed and paid upon cassiterite, or black oxide of tin, a duty of 4c. per lb., and upon bar, block, pig tin and grain or granulated, a duty of 6c. per lb. when it is made to appear to the satisfaction of the President of the United States that the mines of the United States are producing one thousand five hundred tons of cassiterite and bar, block, and pig tin per year. The President shall make known this fact by proclamation, and thereafter said duties shall go into effect.

1679. All barbed wire, whether plain or galvanized.

## Provisions from Other Schedules

A number of products and materials in which the iron and steel trades are interested appear elsewhere than in the Metal Schedule of the new tariff bill. Some of these are given below:

Bauxite or beauxite, crude, not refined or otherwise advanced in condition in any manner, $1 *per ton*. (Free.)

Fire brick, weighing not more than 10 lb. each, not glazed, enameled, ornamented, or decorated in any manner, and brick other than fire brick, 10 per cent ad valorem; glazed, enameled, ornamented, or decorated, 20 per cent ad valorem; weighing more than 10 lb. each and not specially provided for, not glazed, enameled, ornamented, or decorated in any manner, 17 per cent ad valorem; glazed, enameled, ornamented, or decorated, 20 per cent ad valorem; magnesite brick, ¾c. per lb. and 10 per cent ad valorem; chrome brick, not glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, 20 per cent ad valorem; if glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, 23 per cent ad valorem; bath brick, 23 per cent ad valorem.

Graphite or plumbago, crude or refined, not specially provided for, 10 per cent ad valorem. (Free.)

Carbons and electrodes, of whatever material composed, and wholly or partly manufactured, for producing electric arc light; electrodes, composed wholly or in part of carbon or graphite, and wholly or partly manufactured, for electric furnace or electrolytic purposes; brushes, of whatever material composed, and wholly or partly manufactured, for electric motors, generators, or other electrical machines or appliances; plates, rods, and other forms, of whatever material composed, and wholly or partly manufactured, for manufacturing into the aforesaid brushes; and articles or wares (composed wholly or in part of carbon or graphite), wholly or partly manufactured, not specially provided for, 35 per cent ad valorem.

Grindstones, finished or unfinished, $2 per ton.

Fluorspar, $5 per ton; after one year, $4 per ton. ($1.50 per ton). [Free].

Calcined magnesia not suitable for medicinal use and calcined magnesite, including dead burned and grain, ¾c. *per lb.*; and magnesite, crude or ground, ½c. *per lb.*

## Domestic Values as Basis of Duties

An important feature of the new tariff bill is a section evidently designed to counteract the competitive effect of the low exchange values in European countries. It provides that the market values of competitive products in the United States shall be taken as the basis for calculating duties. The section in full is as follows:

Sec. 402. Value.—Except as otherwise provided by law, the word "value" wherever used in this act or in any other law relating to the appraisement or the classification of imported merchandise shall mean the price on the date of exportation of the imported merchandise at which comparable and competitive products of the United States were ordinarily sold or freely offered for sale in the usual wholesale quantities and in the customary wrappings, coverings, and containers, whether holding liquids or solids, to-

all purchasers in the ordinary course of trade, including all costs, charges, and expenses, in the principal market or markets of the United States; or, when such value can not be ascertained to the satisfaction of the appraising officer, shall mean the value of the imported merchandise on said date for sale (whether or not there shall be an actual sale), for consumption or use in the United States in its condition, including wrappings, coverings, and containers, whether holding liquids or solids, as imported. In determining the value for sale, appraising officers may take into consideration, among other matters, the selling price or cost of production of comparable products of the United States and of articles made therefrom or from like imported materials, not sold in usual wholesale quantities or not sold or freely offered for sale to all purchasers in the ordinary course of trade, or not sold at all, and the selling price in the United States of comparable imports, or the selling price or market value or cost of production of the imported merchandise in the foreign country, and may exclude or include all or any costs, charges, and expenses, including duties, and also profits and commission, if any, keeping always in mind the legislative intention that duties ad valorem shall be assessed upon the fair market value of the imported merchandise in the United States. No pretended sale or offer for sale, and no sale or offer for sale tending to establish a fictitious market, shall be held to establish value as herein defined; nor shall a value substantially raised or lowered at the time of exportation otherwise than in the ordinary course of trade be deemed to be such value.

## More Wage Reductions Expected

YOUNGSTOWN, OHIO, July 5.—While steel companies in the Mahoning and Shenango Valleys have as yet announced no wage reduction, following announcement of the cut effective July 16 by the Bethlehem Steel Co., such action is declared to be eventually inevitable. The new common labor rate of 27c. per hr., paid by the Bethlehem company at its Steelton plant, compares with 37c. paid in the Youngstown district.

"Liquidation of both wages and values is still going on," states a leading independent steel maker, "and this must and will continue until the equalizing process reaches the farmers, who are the largest single group of consumers and require the largest amount of transportation."

Another Valley manufacturer states: "It is impossible for us to pay 10c. an hour more for our labor than does an important competitor; we will have to make some further reduction shortly, but it is unfair that we are forced to do so, with neither the railroads nor the building trades down to even our first cut."

As earlier in the year, the independents are expected to take the lead in the further adjustment of wages. Valley steel producers state that a revision of wage rates to make them conform more nearly to what competing interests are paying will be discusssd immediately. Valley employers have generally paid a few cents more per hour than Eastern steel independents. A 30-cent rate in the Valleys for common labor would mean a reduction of 20 per cent., and would compare with 19 1-2c. paid before the war. It would represent a reduction of about 35 per cent. from the war peak, but would still be 60 per cent above the rate which was paid at the opening of the war.

Much common labor outside the industry in the Youngstown district is being paid 25c. per hr.

## Will Build Great Dam

BIRMINGHAM, ALA., July 5.—The Alabama Power Co. will at once begin construction of the Mitchell dam on the Coosa River, the Federal Power Commission having granted the permit. The dam will take two years to build and will cost $7,000,000 to $8,000,000. It will be 74 ft. high and 1800 ft. long. Initial installation will be 60,000 hp.; eventual, 120 000.

The International Nickel Co. has purchased a 3-ton electric furnace from the Pittsburgh Electric Furnace Corporation, Pittsburgh, for its new plant at Huntington, W. Va. The furnace will be used for the melting of Monel metal. A few weeks ago the Chapman Valve Co., Indian Orchard, Mass., purchased a 5-ton furnace from the same company.

# BETHLEHEM PRICES

## Announcement of New Schedule Follows Closely Reduction of Wages

Following closely the reduction of 15 per cent in wages and 10 per cent in salaries by the Bethlehem Steel Co., E. G. Grace, president, announced on July 4 a new schedule of prices of steel products effective the following day as follows:

| | Old Prices | New Prices |
|---|---|---|
| Bars | $2.10 | $1.90 |
| Structural shapes | 2.20 | 2.00 |
| Plates | 2.20 | 2.00 |
| Sheet bars | 39.00 | 35.00 |
| Billets, 4 x 4 | 37.00 | 33.00 |
| Slabs | 38.00 | 34.00 |
| Blue annealed sheets | 2.85 | 2.65 |
| Black sheets | 3.75 | 3.50 |
| Galvanized sheets | 4.75 | 4.50 |
| Tin plate | 6.25 | 5.75 |
| Skelp | 2.20 | 2.00 |

The new prices represent a reduction of $4 a ton on bars, structural shapes, plates, skelp, billets, sheet bar, slabs and blue annealed sheets; $5 a ton on black and galvanized sheets; $10 a ton on tin plate," said Mr. Grace.

"Present manufacturing costs do not in any sense warrant these reductions," he added, "but this company desires to contribute even more than its full share to re-establish conditions in the steel trade on what might be regarded as a normal basis. There has been so much said about steel prices not having been reduced to pre-war levels that an analysis of the new prices is desirable and will be illuminating to both the trade and the general public.

### Freight Largest Factor

"The increase in freight rates has been the largest factor in increasing the cost of manufacturing steel products because the making of a ton of finished steel involves the transportation of more than five tons of raw materials. The cost factors next in importance are materials and labor.

"Taking as an example the price for structural shapes, under the new schedule of prices, 2c. a pound, or $44.80 a gross ton, the comparison with pre-war prices, reflecting concretely the three more important cost factors, is as follows: The increase over pre-war cost in transportation on ore, coal, limestone, scrap and miscellaneous supplies amounts to $7.85 per ton of finished steel; the increase in the cost of coal, ore, limestone, alloys, refractories, lubricants and miscellaneous supplies at point of shipment amounts to $7.10 per ton of finished steel; the increase in the cost of labor under the present wage scale, as compared with pre-war wages in the steel plant proper, is $5.64 per ton of finished steel.

"These items account for an increase in present day costs over pre-war costs of $20.59 per ton of finished product. The new price of $44.80 for structural steel is equivalent to a pre-war price of $24.21 per ton, or 1.08c. per pound.

"Statistics covering the last 20 years show in only one month (December, 1914) has structural material been sold as low as this figure (1.08c.). The ten year pre-war average (1904-1913) was 1.51c. per pound.

"The figures I have used are the results of actual compilation made by the company's comptroller in the every day conduct of the business."

The number of surplus or idle freight cars on the railroads of the country continue to decline, according to reports just received from the carriers by the car service division of the American Railway Association. These show that on June 23 there were 377,850 cars in excess of current freight requirements or a reduction of 3896 cars compared with the total on June 15.

For the first time this year the Girard, Ohio, plant of the A. M. Byers Co., Pittsburgh, was wholly suspended last week. Other companies in the Mahoning Valley whose plants are idle are the Falcon Steel Co. and the Mahoning Valley Steel Co.

# Prices Finished Iron and Steel, f.o.b. Pittsburgh

## Freight Rates

**Freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:**

| | | | |
|---|---|---|---|
| Philadelphia | $0.25 | St. Paul | $0.665 |
| Baltimore | 0.335 | Omaha | 0.815 |
| New York | 0.38 | Omaha (pipe) | 0.77 |
| Boston | 0.415 | Denver | 1.35 |
| Buffalo | 0.295 | Denver (wire products) | 1.415 |
| Cleveland | 0.24 | Pacific Coast | 1.665 |
| Cincinnati | 0.325 | Pacific Coast, ship plates | 1.335 |
| Indianapolis | 0.345 | Birmingham | 0.765 |
| Chicago | 0.38 | Jacksonville, all rail | 0.555 |
| St. Louis | 0.475 | Jacksonville, rail and water | 0.46 |
| Kansas City | 0.815 | New Orleans | 0.515 |
| Kansas City (pipe) | 0.77 | | |

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver, the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of cal' on most steamship lines, via the Panama Canal, are as follows: Pig iron, 55c.; ship plates, 75c.; ingot and muck bars, structural steel, common wire products, including cut or wire nails, spikes, and wire hoops, 75c.; sheets and tin plates, 60c. to 75c.; rods, wire rope, cable and strands, $1; wire fencing, netting and stretcher, 75c.; pipe, not over 8 in. in diameter, 75c.; over 8 in. in diameter, 2½c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

## Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in., on one or both legs, ¼ in. thick and over, and zees, structural sizes, 2c.

## Wire Products

Wire nails, $3 base per keg; galvanized, 1 in. and longer, including large-head barbed roofing nails, taking an advance over this price of $1.25 and shorter than 1 in., $1.75; bright Bessemer and basic wire, $2.75 per 100 lb.; annealed fence wire, Nos. 6 to 9, $2.75; galvanized wire, $3.25; galvanized barbed wire, $3.65; galvanized fence staples, $3.65; painted barbed wire, $3.15; polished fence staples, $3.15; cement-coated nails, per count keg, $2.60; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days, net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 65½ to 68 per cent off list for carload lots, 64½ to 67 per cent for 1000-rod lots, and 63½ to 66 per cent for small lots, f.o.b. Pittsburgh.

## Bolts, Nuts and Rivets

Large structural and ship rivets.....$2.90
Large boiler rivets.....$2.85 to $3.00
Small rivets.....65, 10 and 10 per cent off list
Small machine bolts, rolled threads.70 and 7½ per cent off list
Small sizes in cut threads.....65 and 10 per cent off list
Longer and larger sizes of machine bolts, 60 and 10 to 65 and 10 per cent off list
Carriage bolts, ⅜ in. x 6 in.:
Smaller and shorter, rolled threads.65 and 10 per cent off list
Cut threads.....60 and 10 per cent off list
Longer and larger sizes, 60 and 5 to 60 and 10 per cent off list
Lag bolts.....70 per cent off list
Plow bolts Nos. 1, 2 and 3 head.....60 and 5 per cent off list
Other style heads.....20 per cent extra
Machine bolts, c.p.c. and t. nuts ⅜-in. x 4-in.:
Smaller and shorter.....60 and 5 per cent off list
Longer and larger sizes.....60 per cent off list
Hot pressed sq. or hex. blank nuts.....$4.60 off list
Hot pressed nuts, tapped.....$4.25 off list
C.p.c. and t. sq. or hex. nuts, blank.....$4.60 off list
C.p.c. and t. sq. or hex. nuts, tapped.....$4.25 off list
Semi-finished hex. nuts:
¼ to 9/16 in. inclusive U. S. S., 80 and 10 to 80, 10 and 10 per cent off list
Same sizes S. A. E., 80, 10 and 10 to 80, 10, 10 and 10 per cent off list
⅝ to 1 in. inclusive U. S. S. and S. A. E., 70, 10 and 10, 70, 10, 10 and 10 per cent off list
Stove bolts in packages.....80 and 10 per cent off list
Stove bolts in bulk.....80, 10 and 2½ per cent off list
Tire bolts.....65, 10 and 10 per cent off list
Track bolts.....4c. to 4.20c. base

*Square and Hex. Head Cap Screws*

½ in. and under.....70 per cent off list
9/16 in. to ¾ in.....70 per cent off list

*Set Screws*

½ in. and under.....70 and 5 to 70 and 10 per cent off list
9/16 in. to ¾ in.....70 per cent off list

*Rivets*

Rivets, 1c. per lb. extra for less than 200 kegs. Rivets in 100-lb. kegs, 25c. extra to buyers not under contract; small and miscellaneous lots less than two tons, 25c. extra; less than 100 lb. of a size or broken kegs, 50c. extra.

All prices carry standard extras f.o.b. Pittsburgh.

## Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, $45 to $48; chain rods, $45 to $48; screw stock rods, $50 to $53; rivet and bolt rods and other rods of that character, $45 to $48; high carbon rods, $55 to $70, depending on carbons.

## Railroad Spikes and Track Bolts

Railroad spikes, 9/16-in. and larger, $3.25 base per 100 lb. in lots of 200 kegs of 200 lb. each or more; spikes, ½-in., ⅝-in., and 7/16-in., $3.25 base; 5/16-in., $3.25 base. Boat and barge spikes, $3.25 base per 100 lb. in carload lots of 200 kegs or more, f.o.b. Pittsburgh. Track bolts, $4 to $4.20 base per 100 lb. Tie plates, $2.50 per 100 lb.; angle bars, $2.75 per 100 lb.

## Terne Plates

Prices of terne plates are as follows: 8-lb. coating, 200 lb., $12.30 per package; 8-lb. coating, I. C., $12.60; 12-lb. coating, I. C., $14.30; 15-lb. coating, I. C., $15.30; 20-lb. coating, I. C., $16.55; 25-lb. coating, I. C., $17.80; 30-lb. coating, I. C., $18.80; 35-lb. coating, I. C., $19.80; 40-lb. coating, I. C., $20.80 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

## Iron and Steel Bars

Steel bars, 1.90c. from mill. Refined bar iron, 2.75c.

## Welded Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card:

*Butt Weld*

| Steel Inches | Black | Galv. | Iron Inches | Black | Galv. |
|---|---|---|---|---|---|
| ⅛ | 50½ | 24 | ⅛ to ⅜ | +2½ | +28½ |
| ¼ to ⅜ | 52½ | 26 | ½ | 27½ | 9½ |
| ½ | 56½ | 42 | ¾ | 33½ | 18½ |
| ¾ | 60½ | 48 | 1 to 1½ | 35½ | 20½ |
| 1 to 3 | 62½ | 50 | | | |

*Lap Weld*

| | | | | | |
|---|---|---|---|---|---|
| 2 | 54½ | 42 | 2 | 30½ | 16½ |
| 2½ to 6 | 58½ | 46 | 2½ to 6 | 33½ | 20½ |
| 7 to 12 | 54½ | 41 | 7 to 12 | 29½ | 16½ |
| 13 to 14 | 45 | .. | | | |
| 15 | 42½ | .. | | | |

*Butt Weld, extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| ⅛ | 46½ | 29 | ⅛ to ⅜ | +10½ | +43½ |
| ¼ to ⅜ | 48½ | 31 | ½ | 26½ | 14½ |
| ½ | 53½ | 42 | ¾ | 33½ | 19½ |
| ¾ | 58½ | 47 | 1 to 1½ | 35½ | 21½ |
| 1 to 1½ | 60½ | 49 | | | |
| 2 to 3 | 61½ | 50 | | | |

*Lap Weld, extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| 2 | 52½ | 41 | 2 | 31½ | 18½ |
| 2½ to 4 | 56½ | 45 | 2½ to 4 | 34½ | 22½ |
| 4½ to 6 | 55½ | 44 | 4½ to 6 | 33½ | 21½ |
| 7 to 8 | 50½ | 37 | 7 to 8 | 24½ | 12½ |
| 9 to 12 | 45½ | 32 | 9 to 12 | 19½ | 7½ |

To the large jobbing trade an additional 1, 5 and 2½ per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent.

## Boiler Tubes

The following are the discounts for carload lots f.o.b. Pittsburgh:

| *Lap Welded Steel* | | *Charcoal Iron* | |
|---|---|---|---|
| 1¾ in. | 19½ | 1½ in. | +10 |
| 2 to 2¼ in. | 30 | 1¾ in. | List |
| 2½ to 3 in. | 41 | 2 to 2¼ in. | —10 |
| 3¼ to 13 in. | 47 | 2½ to 2¾ in. | —15 |
| | | 3 to 3¼ in. | —16 |
| | | 3½ to 4½ in. | —20 |

*Carload Discounts on Standard Commercial Seamless—Cold Drawn*

| | | | |
|---|---|---|---|
| 1 in. | 56 | 2 to 2½ in. | 17½ |
| 1¼ in. | 49 | 2¾ and 4 in. | 20 |
| 1½ in. | 48 | 4½ to 5 in. | 7½ |
| 1¾ in. | 25 | | |

*Hot Rolled*

3 to 4 in. ..... 30

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department which will be subject to special negotiations.

## Sheets

Prices for mill shipments on sheets of standard gage in carloads, f.o.b. Pittsburgh, follow:

*Blue Annealed*

| Cents per Lb. | | Cents per Lb. | |
|---|---|---|---|
| No. 8 and heavier | 2.55 | Nos. 11 and 12 | 2.75 |
| Nos. 9 and 10 (base) | 2.65 | Nos. 13 and 14 | 2.85 |
| | | Nos. 15 and 16 | 2.95 |

*Box Annealed, One Pass Cold Rolled*

| Cents per Lb. | | Cents per Lb. | |
|---|---|---|---|
| Nos. 17 to 21 | 3.30 | No. 28 (base) | 3.50 |
| Nos. 22 to 24 | 3.35 | No. 29 | 3.60 |
| Nos. 25 and 26 | 3.40 | No. 30 | 3.70 |
| No. 27 | 3.45 | | |

*Galvanized*

| Cents per Lb. | | Cents per Lb. | |
|---|---|---|---|
| Nos. 10 and 11 | 3.50 | Nos. 25 and 26 | 4.25 |
| Nos. 12 to 14 | 3.60 | No. 27 | 4.35 |
| Nos. 15 and 16 | 3.75 | No. 28 (base) | 4.50 |
| Nos. 17 to 21 | 3.90 | No. 29 | 4.75 |
| Nos. 22 to 24 | 4.05 | No. 30 | 5.00 |

*Tin-Mill Black Plate*

| Cents per Lb. | | Cents per Lb. | |
|---|---|---|---|
| Nos. 15 and 16 | 3.30 | No. 28 (base) | 3.50 |
| Nos. 17 to 21 | 3.35 | No. 29 | 3.55 |
| Nos. 22 to 24 | 3.40 | No. 30 | 3.55 |
| Nos. 25 to 27 | 3.45 | Nos. 30½ and 31 | 3.60 |

# Non-Ferrous Metals

## The Week's Prices

Cents Per Pound for Early Delivery

| | Copper, New York | | Tin | Lead | | Zinc | |
|---|---|---|---|---|---|---|---|
| June | Lake | Electro-lytic | New York | New York | St. Louis | New York | St. Louis |
| 29 | 12.75 | 12.62½ | 28.87½ | 4.40 | 4.25 | 4.75 | 4.25 |
| 30 | 12.75 | 12.62½ | 29.00 | 4.40 | 4.25 | 4.80 | 4.30 |
| July | | | | | | | |
| 1 | 12.75 | 12.62½ | 29.37½ | 4.40 | 4.25 | 4.85 | 4.35 |
| 2 | 12.75 | 12.62½ | .... | 4.40 | 4.25 | 4.85 | 4.35 |
| 5 | 12.75 | 12.62½ | 29.87½ | 4.40 | 4.35 | 4.85 | 4.35 |

NEW YORK, July 5.

The markets have been exceedingly quiet, the inactivity being intensified by the July holiday. Buying of copper has not improved but prices are steady. There has been very little change in the tin market. Conditions in the lead market have been quiet with the price tendency firm. There has been a better feeling in the zinc market and prices are higher. In the tin, lead and zinc markets the predominating topic has been the proposed duty in the tariff bill just introduced into Congress.

### New York

**Copper.**—There has been very little change in the fundamental conditions as reported a week ago. Most of the large producers refuse to quote at anything less than 13c. to 13.25c. for electrolytic copper for July delivery, but there are two or three other sellers who are willing to meet any reasonable offer and such business as is going, which is decidedly small, is being taken by these sellers at an average of 12.87½c., delivered, or 12.62½c., New York, which we quote as the market. Some sellers report a slight increase in foreign purchases, but in general interest on the part of the domestic consumer continues light. Quotations for Lake copper are largely nominal and at nearly the same levels as in the electrolytic market.

**Copper Averages.**—The average price of Lake copper for the month of June, based on daily quotations in THE IRON AGE, was 12.91c. The average price of electrolytic copper was 12.88c.

**Tin.**—With the exception of last Friday, July 1, the market has been nearly stagnant with very few buyers or sellers and a decided lack of interest, which is characterized by some as greater than ever before in the history of the market. Late on Friday dealers turned buyers and about 300 to 400 tons of prompt shipment from England and of future shipment from the East was sold around 29.25c. to 29.37½c. The feature of the week has been the proposed duty of 2c. per lb. on pig tin with tin ores free, as presented in the new tariff bill recently introduced into Congress. General satisfaction over this seems to prevail among importers, due largely to the fact that there was a strong movement to obtain a duty of 10c. per lb. on pig tin and 6c. on tin contained in the ore. Spot Straits tin, New York, has been steady during the week around 29c. to 30c., with the quotation to-day at 29.87½c., New York. The London market is again higher than a week ago by £5 to £6 per ton, the quotations to-day standing at £172 5s. for spot standard, £174 5s. for future standard and £172 15s. for spot Straits. Deliveries into consumption during the month were 1590 tons, with 2546 tons in stocks and landing on June 30. Imports for the half year have been only 8918 tons, as compared with 27,743 tons to July 1, 1920.

**Lead.**—The feature of the market is the fact that it is practically impossible to buy the metal from any of the independent producers, thus leaving the market practically in the hands of the leading interest. At the best, however, there is very little business, at least not enough to establish a market among independent sellers. The market may be characterized as quiet at from 4.40c., New York, or 4.25c., St. Louis. The new tariff bill proposes a duty of 2⅛c. per lb. on pig lead as compared with the present rate of 25 per cent ad valorem.

**Zinc.**—There has been a stiffening in quotations and prime Western cannot be bought from producers at less than 4.35c., St. Louis, or 4.85c., New York, for early delivery. The stronger feeling is due partly to the proposed tariff of 2c. per lb. on imports for the first year as compared with the present rate of 10 per cent ad valorem, but there is also a feeling that July will see the bottom of the zinc market, if it has not already appeared, and that from then on a better demand at higher prices will rule. It develops that some galvanizers are bare of stocks, while others are well supplied.

**Antimony.**—Wholesale lots for early delivery are quoted largely nominal at 4.75c., New York, duty paid.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, in wholesale lots for early delivery, is quoted by the leading interest at 28c., f.o.b. plant, with foreign metal of the same grade obtainable at a range of 22c. to 23.50c., New York, depending on the seller and the source of the metal.

### Chicago

July 5.—Tin has advanced in sympathy with London, where the improved English industrial outlook has strengthened the market. Lead is slightly stronger, principally because sellers refuse to sell at the prices which buyers offer. In both lead and spelter there is something of a deadlock between buyers and sellers because of inability to agree on price. Most of the old metals have declined. We quote: Tin, 32c.; lead, 4.45c.; crucible shapes, 7.50c.; copper clips, 7.50c.; copper bottoms, 6.50c.; red brass, 6.50c.; yellow brass, 4.50c.; lead pipe, 2.50c.; zinc, 1.75c.

### St. Louis

July 1.—The non-ferrous markets continue dull, with lead quoted at 4.25c. and spelter 4.25c. in car lots. We quote Lake copper at 13.61c. in car lots; tin, 29.86c.; antimony, 5.49½c. On old metals we quote: Light brass, 4c.; heavy yellow brass, 6c.; heavy red brass, heavy copper and copper wire, 9c.; light copper, 7.50c.; pewter, 17c.; tinfoil, 18c.; zinc, 2.75c.; lead, 3c.; tea lead, 2c.; aluminum, 9c.

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## Lake Iron Ore Shipments in June

The movement of Lake Superior iron ore by water in June and for the season up to July 1 was less than that of the corresponding period in 1920. June shipments from upper lake docks amounted to 3,600,989 gross tons, against 9,233,566 tons in June, 1920, a decrease of 5,632,577 tons. The total to July 1 was 6,371,227 tons, or 10,069,278 tons less than to July 1 last year. The shipments by ports for June, 1920 and 1921, and for the season were as follows in gross tons:

| | June, 1920 | June, 1921 | To July 1, 1920 | To July 1, 1921 |
|---|---|---|---|---|
| Escanaba | 1,147,136 | 138,756 | 1,942,809 | 210,804 |
| Marquette | 553,367 | 38,959 | 928,403 | 52,944 |
| Ashland | 1,299,820 | 309,398 | 2,312,869 | 526,937 |
| Superior | 2,256,250 | 873,674 | 4,445,496 | 1,716,230 |
| Duluth | 2,528,446 | 1,681,411 | 4,216,685 | 2,908,299 |
| Two Harbors | 1,448,547 | 558,791 | 2,594,243 | 956,013 |
| Total | 9,233,566 | 3,600,989 | 16,440,505 | 6,371,227 |
| Decrease | | 5,632,577 | | 10,069,278 |

Duluth shipments this year have been considerably less than to July 1, 1920, which is true also of Escanaba, Marquette, Ashland and Superior.

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Union molders in foundries in the Youngstown, Ohio, district have agreed to accept a new wage scale 20 per cent lower than the old scale. The new rate, which became effective July 1, provides for a minimum wage of 80c. per hr., as compared with a minimum of $1 under the old scale.

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The Metropolitan Paving Brick Co., Canton, Ohio, has reduced the price of paving block from $30 to $27 per 1000. The new price is a decline of 20 per cent from the peak. Kilns of the company at Bessemer, Pa., are operating at 75 per cent of normal.

# MANUFACTURE OF MACHINERY

## Census Bureau's Summary Concerning the Industry, 1919

WASHINGTON, D. C., June 25.—A preliminary statement of the general results of the 1919 census of manufactures has been issued by the Bureau of the Census, Department of Commerce, furnishing statistics concerning the value of various kinds of machinery manufactured during the year 1919, with comparisons for 1914.

| | 1919 | | 1914 | |
|---|---|---|---|---|
| | Number Establishments | Value of Products | Number Establishments | Value of Products |
| Adding and calculating machines | 54 | *$57,454,000 | 44 | *$14,734,000 |
| Air compressors | 57 | 13,960,000 | 84 | 5,158,000 |
| Bakers' machinery | 62 | 10,186 000 | 32 | 2,555,000 |
| Blowers and fans | 43 | 9,498,000 | .. | † |
| Blotting machinery | 38 | 6,439,000 | 29 | 1,359,000 |
| Brick, pottery and other clay working machinery | 43 | 5,371,000 | 89 | 2,439,000 |
| Cash registers and parts | 20 | *31,038 000 | 19 | *15,935,000 |
| Concrete mixers | 62 | 9,579,000 | 44 | 2,956,000 |
| Condensers | 16 | 9,387,000 | .. | † |
| Cotton gins | 21 | 8,632,000 | 25 | 4,902,000 |
| Confectioners' machinery | 49 | 8,469,000 | .. | † |
| Cranes: | | | | |
| Electric | 33 | 25,865,000 | .. | † |
| Steam and hydraulic | 13 | 13,515,000 | 26 | 4,194,000 |
| Other | 38 | 9,568,000 | .. | † |
| Dairy mach'y and apparatus | 139 | 34,456,000 | 78 | *12,998,000 |
| Dredging machinery | 11 | 1,939,000 | .. | † |
| Elevators and elevator machinery | 195 | 54,052,000 | 213 | 17,228,000 |
| Excavating machinery | 34 | 6,641,000 | 21 | 2,969,000 |
| Firearms, ordnance and ammunition machinery | 18 | 2,814,000 | .. | † |
| Flour and grist mill machinery | 86 | 16,366,000 | 101 | 5,018,000 |
| Gas machines and apparatus | 70 | 7,898,000 | 90 | 4,426,000 |
| Glass making machinery | 23 | 3,015,000 | 30 | 1,091,000 |
| Hydraulic rams | 13 | 1,369,000 | .. | † |
| Laundry machinery: | | | | |
| Power machines | 30 | 10,341,000 | 73 | 6,135,000 |
| All other | 18 | 2,192,000 | 35 | 1,430,000 |
| Lawn mowers | 14 | 2,176,000 | 22 | 2,848,000 |
| Leather working machinery, other than shoes | 47 | 5,108,000 | 27 | 1,067,000 |
| Metal working machinery, other than machine tools | 155 | 36,348,000 | 277 | 17,420,000 |
| Meters, gas and water | 39 | *20,572,000 | 40 | *11,638,000 |
| Mining machinery, exclusive of oil-well machinery | 107 | 41,866,000 | 153 | 13,254,000 |
| Motion picture machinery | 24 | *3,510,000 | 16 | *1,820,000 |
| Oil-well machinery | 61 | 22,219,000 | 127 | 10,569,000 |
| Oil-mill machinery, cotton-seed and other | 20 | 6,598,000 | 20 | 1,878,000 |
| Ore crushers | 17 | 1,162,000 | .. | † |
| Paper and pulp mill mach'y | 121 | 16,198,000 | 139 | 8,588,000 |
| Photo engraving machinery | 7 | 660,000 | .. | † |
| Printing machinery: | | | | |
| Presses | 45 | 15,520,000 | 88 | 8,397,000 |
| Typesetting machines, linotype and other | 11 | 15,197,000 | 10 | 7,635,000 |
| Other | 81 | 9,334,000 | 56 | 3,197,000 |
| Pumps and pumping mach'y | 204 | *65,360,000 | 298 | *27,457,000 |
| Refrigerating machinery: | | | | |
| Ice making | 44 | 14,624,000 | 73 | 10,522,000 |
| Other refrigerating | 40 | 15,277,000 | | |
| Road making machines | 43 | 13,915,000 | 31 | 3 545,000 |
| Rubber working machinery | 51 | 13,302,000 | 14 | 2,726,000 |
| Sandblast machines | 12 | 686,000 | .. | † |
| Sewing machines | 29 | *48,946,000 | 46 | *21,711,000 |
| Shoe machinery | 58 | 7,459,000 | 72 | 5,949,000 |
| Slot vending machines | 17 | 1,206 000 | .. | † |
| Steam shovels | 8 | 9,654,000 | .. | † |
| Stokers, mechanical | 9 | 2,811,000 | .. | † |
| Sugar-mill machinery | 49 | 13,249,000 | 42 | 1,972,000 |
| Typewriters | 39 | *43,313,000 | 53 | *20,517,000 |
| Vacuum cleaners | 9 | 1,641,000 | 39 | 2,059,000 |
| Washing machines | 115 | *50,955,000 | 111 | *7,600,000 |
| Well drilling machinery, other than oil well | 30 | 1,663,000 | .. | † |
| Windmills | 33 | *9,923,000 | 50 | *5,843,000 |
| Wire-drawing machinery | 12 | 619,000 | .. | † |
| Woodworking machinery: | | | | |
| Sawmill | 69 | 10,046,000 | 182 | 6,304,000 |
| Planing mill | 36 | 6,338,000 | 196 | 7,089,000 |
| Other | 136 | 13,198,000 | | |
| Other machinery | | 121 930,000 | | |
| Machine parts and castings | | 53,504,000 | | |
| Amount received for contract work, repairs, etc. | | 35,922,000 | | 72,545,000 |

*Includes value of all products of establishments engaged primarily in the manufacture of machines specified.
†Comparative figures not available.

The Edwin Forrest Forge Co., San Francisco, has secured the contract for approximately 400 tons of forgings to go to the Southern California oil fields.

# LOWER FREIGHT RATES

## Revision of Schedule to Seattle Expected—Shipping Steel to Alaska

SEATTLE, June 27.—It is the opinion of jobbers that sheets must come down before there will be any late summer movement, and advices this week indicate that some further reductions, which will meet the view of investors and the trade, are in prospect.

Pipe in sizes of three-quarters and halves, the two sizes most popular in the north Pacific territory, has been moving well. Present stocks have begun to show breakage and jobbers report that it is difficult to fill in. Some sheets have begun again to move by water, the difference in rail and water rates being attractive to buyers, but the same reconditioning process has been necessary and the saving is of doubtful proportions. Freights from Pittsburgh to Seattle by rail are to be cut, it is understood, from $1.66 to $1.05, applicable to sheets, plates and pipe. This is believed to be a hopeful sign. Reports here indicate that Eastern rail lines that have steadily opposed the trans-continentals in the desire for workable rate reductions have assented to the decline.

Advices here this week are in effect that the Isthmian Steamship lines will dispatch the steamer Charlton Hall from Baltimore and Mobile for Seward and other Alaska ports with a full cargo of rails for the Alaska Engineering Commission. This will be the first intercoastal vessel traveling through without transshipment at Seattle to deliver steel into Alaska.

The National Steel Construction Co., John Wilson, president, has established in the company's Duwamish Waterway plant the first range boiler factory west of the Rocky Mountains. Heretofore this section has had to draw from the Middle West for its range boilers. The factory will have an initial capacity of 80 range boilers per day. Establishment of the factory followed eight months of experimental work in getting a competitive high standard product. In establishing the plant a pickling division and special equipment and machinery were added to the company's steel construction and shipbuilding plant. The steel used in the boilers is pickled in a series of chemical solutions to prevent rust or scaling. Range boilers built in the East, it is stated, are not constructed for the high water pressure used in the North Coast territory. While developing the boiler feature the company will continue in the steel construction and shipbuilding industry. Its plant is the only one left in Seattle with facilities for building steel ships.

Jobbers complain of the heavy amount of second-hand tools, heavy duty and otherwise, that has been offering from shipyard stocks. The result has been heavy reductions in the spring and summer orders for new material. Frequent revised price lists, with declining prices for these mixed stocks, are adding further to the embarassment.

Employees of the Pennsylvania Railroad shops at Altoona, Pa., on July 1 began working under new conditions agreed upon with the management after a series of conferences. The new order constitutes a piece-work system, which the management claims will enable the workmen to earn more than under the day rate system. A 48-hr. basic week, with not more than nine hours or less than eight hours, with half-holidays on Saturdays, has been established. Overtime is to be paid pro-rata for the ninth and tenth hours, with time and a half after the tenth hour.

The Interstate Commerce Commission has entered an order changing from July 1 to Sept. 1, 1921, the effective date for the payment by the Louisville & Nashville and other railroads of reparation to the Sloss-Sheffield Steel & Iron Co., and other Southern iron and steel producers on account of unreasonable rates charged on pig iron shipments from points in Alabama and Tennessee to Ohio river crossings and points in Central Freight Association territory.

# PERSONAL

Additional business representatives have been appointed by THE IRON AGE as follows: H. E. Barr, Eastern New England advertising manager; F. W. Schultz, New York City advertising manager; E. Sinnock, Brooklyn and Long Island advertising manager; C. L. Rice, eastern New York State advertising manager; B. L. Herman, western New York State advertising manager; W. C. Sweetzer, New Jersey advertising manager; A. L. Marsh, central Pennsylvania advertising manager, and D. G. Heinly, Michigan advertising manager. The branch offices in Philadelphia, Cincinnati, Chicago, Pittsburgh, Cleveland, Washington and San Francisco will continue under their present managers.

William D. Kelly, works manager Oakland Motor Car Co., Pontiac, Mich., has resigned.

Frank H. Crockard, president Woodward Iron Co., has been elected president of the Alabama Coal Operators' Association.

Clarence V. Brown, head of the United States Pressed Steel Co., Ypsilanti, Mich., has been appointed receiver of the Universal Utilities Corporation, Alpena, Mich. He has announced that the plant will be in operation in a short time.

C. E. Kitchen, formerly in charge of coal and coke sales for the Iron Trade Products Co., Pittsburgh, and R. B. Loos, until recently associated with the Pittsburgh office of the Walter Wallingford Coal Co., Cincinnati, have organized the Penn-Empire Coal, Inc., with a capitalization of $200,000 and have opened offices in the Empire Building, Pittsburgh. The new company controls some production and also will do an agency business in coal and coke.

Floyd Rose, secretary Heppenstall Forge & Knife Co., Pittsburgh, was made general manager of sales of both that company and its subsidiary, the Heppenstall Forge Co., at a recent meeting of the board of directors.

Walter J. Kohler, president Kohler Co., Kohler, Sheboygan County, Wis., manufacturer of sanitary plumbing fixtures, farm lighting plants, etc., was elected president of the board of regents of the University of Wisconsin at the annual meeting on June 27.

Harry R. Jones, president United Alloy Steel Corporation, Canton, Ohio, sailed for Europe a few days ago and will spend two months in Iceland, Norway and England.

Joseph E. Jacobson, formerly in charge of the Chicago office of the Continental Iron & Steel Co., is now associated with Luria Brothers & Co., Inc., iron and steel scrap, will be district manager in its Pittsburgh office, Oliver Building.

John Booth, coke sales department, New England Coal & Coke Co., Boston, has resigned to becomes sales representative for a Pennsylvania anthracite coal producing company, with headquarters in Boston.

Capt. Harry K. Cage has been appointed manager Charlestown Navy Yard, Boston, in charge of ship repairs.

Sven Binquist, Swedish inventor and founder of the S. K. F. industries, and B. G. Prytz, president of the affiliated organizations, were given a banquet at the Farmington Country Club, Farmington, Conn., last week by B. M. W. Hanson, Whitney-Hanson Mfg. Co., Hartford, Conn. About 35 representatives of leading Connecticut, Rhode Island and Massachusetts manufacturing industries attended.

Everett Morss, president Simplex Wire & Cable Co., Boston, recently returned from a nine weeks' tour in Europe, last week was tendered a complimentary dinner at the Boston City Club by 37 members of the company's organization.

James R. Mills, Cleveland sales manager of the Carnegie Steel Co., sailed from New York on July 5 on a European trip.

Joshua A. Hatfield, president American Bridge Co. of New York, sailed on the Aquitania on Tuesday on a trip to England and the Continent.

A. A. Fowler, New York resident partner of Rogers, Brown & Co., has returned from a four months' stay in Europe.

Charles M. Muchnic of the American Locomotive Sales Corporation, New York, has returned from a business trip to Mexico.

# OBITUARY

## Benjamin Nicoll

BENJAMIN NICOLL, long a prominent figure in iron and steel circles in New York, died unexpectedly from apoplexy Saturday evening, July 2, while talking with friends at the Somerset Country Club, Bernardsville, N. J. Mr. Nicoll was born on Shelter Island, Long Island, and was 66 years of age. He graduated from Princeton University in 1877 at the age of 22 and soon after became connected with the Mt. Pleasant Mining Co., which was operating iron ore properties in New Jersey. After being engaged in the selling of ore of this company for several years, Mr. Nicoll started in the mining of ore in New Jersey in his own interest, and in the late 80's organized the firm of B. Nicoll & Co. Although associated with partners in the early days of the business, Mr. Nicoll was the dominating factor in the firm, which continued until January, 1921, when it became incorporated as B. Nicoll & Co., Inc., the officers being Benjamin Nicoll, president; G. F. Eldridge and H. K. Stauffer, vice-presidents; Edward Mullen, treasurer, and Courtlandt Nicoll, secretary.

B. Nicoll & Co. carried on a large business in ore and pig iron, both domestic and for export, also did a considerable business in importing, and at times were heavy exporters of steel products. In 1902 coal was added to the products, and in 1917 non-ferrous metals were included. For many years the firm was the sales agent for the Wharton Steel Co., as it was also for the Wickwire Steel Co. until that company became a part of the Wickwire-Spencer Steel Corporation in 1919. Mr. Nicoll had been a director of the Colorado Fuel & Iron Co., Rossie Iron Ore Co. and the Vulcan Detinning Co., but had withdrawn from all of these. Mr. Nicoll had homes at 46 West Fifty-fourth Street, New York; Morristown, N. J.; Water Mill, Long Island, and Peapack, N. J. He is survived by his wife; his son Courtlandt Nicoll, who is an attorney; a daughter and a brother, Delancey Nicoll. Mr. Nicoll was a man of strong personality, great energy, and in a quiet way was happy in being of service to his fellow men.

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JOHN FINDLEY WALLACE, best known as one time chief engineer of Panama Canal, died suddenly at a hotel in Washington on the evening of July 3. He had gone to Washington to testify before a Senate committee investigating the railroad situation. He was born in Fall River, Mass., Sept. 10, 1852, and was graduated from the University of Wooster as a civil engineer. He was identified for years with railroads, notably with the Illinois Central from 1891 to 1904, or until he became connected with the Panama Canal. From 1906 to 1917 he was first president, and then chairman of the board of Westinghouse, Church, Kerr & Co. Among his conspicuous achievements was the building of a joint entrance into Chicago for the Santa Fe and Illinois Central roads and the building of the World's Fair terminals at Chicago in 1892.

OSCAR IRWIN, aged 47 years, superintendent of the spike plant at the Soho Works, Jones & Laughlin Steel Co., Pittsburgh, died at the Southside Hospital, Pittsburgh, June 29, as a result of injuries sustained at the plant, Friday, June 24.

ERNEST NICKERSON, Wellesley, Mass., engineer and erector of many bridges throughout the United States, died in that town June 30, at the age of 52 years.

# British Iron and Steel Market

## Signs of a Resumption of Activity—British Prices Still Too High to Compete with Continent

(*By Cable*)

LONDON, ENGLAND, July 5.

Official prices of pig iron are unchanged, but up to 15s. ($2.80) premium is being paid for No. 3 Cleveland. Some furnaces are preparing to start up again, but much depends on fuel prices. Coke is expected to fall to 30s. to 35s. ($5.59 to $6.53) at ovens, against 42½s. ($7.93) before the strike; but everything is very uncertain at present. Wage agreements are being arranged in various directions, with provision for arbitration to settle disputes. Belgian foundry pig iron is arriving, delivered in the Midlands at £7 5s. ($27.04).

There is more inquiry for steel, but British prices are still too high. The tendency is downward, and a more substantial revision is expected very soon. Common iron bars are £3 ($11.19) down at £16 ($59.68).

German merchant bars are being sold here at £8 ($29.84) and Belgian bars at £8 10s. ($31.70). German billets are offered at £5 17s. ($21.82) f.o.b.; French billets at £6 5s. ($23.31) f.o.b.; French sheet bars at £6 10s. ($24.24) f.o.b.; Belgian billets at £6 17½s. ($25.64) c.i.f.

Efforts for price convention on galvanized sheets have failed. Makers quote £22 10s. ($83.92) upward, but there is more inquiry and there are some signs from India of a revival of buying.

Tin plates show little fresh features. For prompt delivery, quotations are 27¼s. to 27½s. ($5.07 to $5.12) f.o.b.; for forward delivery, 25½s. to 26s. ($4.75 to $4.85) f.o.b.

We quote per gross ton except where otherwise stated, f.o.b. maker's works, with American equivalent figured at $3.73 per £1 as follows:

| | | |
|---|---|---|
| Durham coke | £2 2 | $7.83 |
| Cleveland basic | 6 0 | 22.38 |
| Cleveland No. 1 foundry | 6 5 | 23.31 |
| Cleveland No. 3 foundry | 6 0 | 22.38 |
| Cleveland No. 4 foundry | 5 19 | 22.19 |
| Cleveland No. 4 forge | 5 17½ | 21.91 |
| Hematite | 7 0* | |
| East Coast mixed | 8 0 & £7 5* | 29.84 & $27.04 |
| Ferromanganese | 18 0 & 15 0* | 67.14 & 55.95 |
| Ship plates | 15 0 to 15 10 | 55.95 to 57.81 |
| Boiler plates | 19 0 to 21 0 | 70.87 to 78.33 |
| Tees | 15 0 to 15 10 | 55.95 to 57.81 |
| Channels | 14 5 to 14 15 | 53.15 to 55.01 |
| Beams | 14 0 to 14 10 | 52.22 to 54.08 |
| Round bars, ¾ to 3 in. | 14 0 to 14 10 | 52.22 to 54.08 |
| Rails, 60 lb. and up | 13 0 to 15 0 | 48.49 to 55.95 |
| Billets | 11 0 to 11 10 | 41.03 to 42.89 |
| Sheet and tin plate bars, Welsh | 10 10 | 39.16 |
| Galvanized sheets, 24 g. | 22 10 to 23 0 | 83.92 to 85.79 |
| Black sheets | 19 0 to 20 0 | 70.87 to 74.60 |
| Tin plate base box | 1 5½ to 1 8 | 4.75 to 5.22 |
| Steel hoops | 17 0 | 63.41 |

*Export price.

# SOUTH MANCHURIA BUYS

## Inquires for Railroad Material and Tie Plates—Public Works in Shanghai—Mexican Locomotives

NEW YORK, July 5.—Although there is a slight inclination on the part of European buying centers to place some orders in the United States, Japan still maintains the greatest activity. In addition to about 300 tons of structural material recently inquired for from Japan, evidently for shipbuilding, an additional 300 tons has been asked for from the same source. The greater part of these two orders will probably be placed in Europe. The South Manchurian Railroad, which has been actively buying of late, has purchased a number of electric car heaters and parts and a quantity of car couplers totaling about $15,000. This railroad is also in the market for about 1500 tons of tie plates.

American Locomotive Co. is understood to have closed on 45 locomotives for Mexico.

### Japanese Inquiries Continue

New inquiries continue to appear from Japanese sources. In all about 10,000 boxes of tin plate are reported in the market, 5000 boxes previously mentioned being for the Imperial army. One of the largest Japanese shipyards, which is represented in the United States, has inquired for about 1700 tons of ship plates and there is a small inquiry in the market for a tonnage of 75-lb. rails. A contract for transmission towers, similar to those in the market some time ago, is reported to have been issued. A fair-sized tonnage of reinforcing bars is being handled by a Japanese export house, part of the order being for shipment to Kobe and part for Yokohama, for building projects in both cities.

### Light Buying of Foreign Material

Not only are warehouses and exporters in New York showing an interest in foreign material, but in a few cases sales have been made of small tonnages, purchased largely as an experiment as to quality, price and delivery. While low bids are being received from the United Kingdom, they are generally from commission merchants and exporters, who are importing Belgian and German material for re-export. British manufacturing costs are reported as altogether too high to permit of more than normal competition with American material. A representative of a large German interest is said to have been offering cotton ties in the Southern States at a low figure.

In a general way it may be said that European prices on steel delivered in the Orient correspond to about 1c., Pittsburgh; in other words, there is a difference at present in favor of European business of about $20 a ton, taking into consideration all factors of prices at European mills, exchange and freight rates. No great concern is felt, as with any expansion in the volume of business the disparity would, it is believed, tend to vanish. It follows that on business which is done here on export account prices are low; in one case of plates the Steel Corporation is believed to have closed at a price figuring back to 1.60c., Pittsburgh, probably shipping the material from the Gulf.

### Improvements in China

A new sewerage system is to be installed in the International settlement in Shanghai, China. Besides the pipe, about 20 pumps will be installed for 4-in. and 6-in. pipe. The Stereophagus type of pump has been specified. The existing wharves at Pukow, at the terminus of the Tsientsin-Pukow Railroad, which are about 10 years old, will be reconstructed and two additional wharves built to accommodate the increased mining traffic. Contract has been awarded to the Kiangnan Dockyard, Shanghai.

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Research facilities and the development activities of American industries are to be described in the forthcoming revision of "Bulletin of the National Research Council." Only 300 such laboratories were listed in the first edition but it is hoped that several hundred new names will appear in the revision and that a more nearly complete reference list will thus become available.

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The General Electric Co., Schenectady, N. Y., has acquired the electrical manufacturing company of Societa Elettrotecnica Galileo Ferraris, Milan, Italy, and in the future will operate the property. This concern formerly was known as the Thomson-Houston Co. The electrical business will be separated from the steam equipment manufacturing operations, and placed under another management.

## SEE FAVORABLE SIGNS

### Youngstown Manufacturers Hope for Improved Conditions at Not Far Distant Date

YOUNGSTOWN, OHIO, July 5—While actual production of iron and steel probably reached a new low level this week in the Mahoning Valley, due to the combined influence of the holiday suspension and the closing down of union sheet and tinplate mills, manufacturers, nevertheless, see hopeful signs for a betterment in the industry. Joseph G. Butler, Jr., vice-president of the Brier Hill Steel Co. and a director of the Youngstown Sheet & Tube Co., believes there will be a definite upturn in buying of some finished steel lines by fall, which will gather force before the end of the year. Mr. Butler attributes the slump in sheets and plates to an over-expansion in productive capacity, superinduced by war demands. Withdrawal of such requirements left the country with greater capacity, and any diminution in demand would therefore appear for the time being more pronounced than it really is, he points out. Gradual growth in demand, he believes, will absorb any excess capacity which may exist, which in the case of sheets will be accelerated by the new uses to which such material is being constantly put.

Only those departments requiring continuous operation, such as blast furnaces and coke ovens, were operated over the week-end and the holiday. On Tuesday but five of the 51 independent open-earth furnaces in the Valley resumed, while the Carnegie Steel Co. operated nine furnaces. But 19 of the 105 sheet mills are under power, 10 of the Newton Steel Co. at Newton Falls and nine of the Youngstown Sheet & Tube Co., all union mills being suspended through failure of the manufacturers and employees to reach a new wage agreement. Tin mills of the Trumbull Steel Co. are idle for the same reason. The Youngstown Sheet & Tube Co. has five pipe furnaces fired and the Republic Iron & Steel Co. two. The Trumbull company is operating a number of strip mills. The 84-in. plate mill of the Brier Hill Steel Co. is running on a part-time schedule.

#### Expansion in Production

Fabricating interests whose products go into building construction generally, report an expansion in production. President Julius Kahn of the Truscon Steel Co. states productive capacity is to be enlarged to 75 per cent., from 60, to take care of increased inflow in new business. The William B. Pollock Co., on the other hand, a fabricating interest whose work in the past has been devoted to a large extent to blast furnace construction and repairs, is virtually suspended and may continue so for an indefinite period.

Price readjustments in some important finished lines are believed impending, through the general disregard of nominal quotations by all the leading district interests. An impetus to fall buying is expected in view of the drastc readjustments which have already taken place in the industry, especially in prices, and because of the very satisfactory crop conditions throughout the country. Exceptionally limited buying by the farmers for the past year will bring them into the market for many miscellaneous needs, steel makers here believe, which will directly and indirectly benefit the steel industry through the improved demand for farm implements, tractors, automobiles and railroad equipment to haul them. Lower freight rates, for which important independent steel makers are contending, will help the farmer realize a larger net return on his products and thus bring into the market a large group of consumers who are at present buying little or nothing because they cannot supply their needs at the same relative prices they receive for their grain, cattle, hogs and other products.

#### Price Determined by the Size of Order

The tonnage produced by one large interest in June was somewhat better than that in May, the smallest for any month in many years. It is generally acknowledged that the price situation is weak and determined to a large degree by the size of the order and nature of the specifications.

There is generally more activity in wire, nails, conduit, smaller sizes of merchant pipe and fabricated materials entering into construction. Renewed inquiry for steel plates is coming from car repair and tank interests and a strengthened buying movement is anticipated by Valley makers in view of the awarding of substantial repair contracts by some of the railroads. One consuming interest reports that plates have been offered at 1.85c, Pittsburgh base, which is 35c per 100-lb.. below the market. The plate market maximum appears to be 2c on business placed.

Lower prices which are being quoted on buttweld pipe and line pipe and casing are in line with the trend of finished commodities generally. Lapweld business is lifeless through overstocking by the oil fields, and is consequently moving on a highly competitive basis.

In strip steel, demand for hot-rolled supersedes that for cold rolled, auto builders and makers of automobile parts taking most of the tonnage. The cold material has settled to 5c, declining from 5.50c, and hot rolled is quotable at 2.50c to 2.60c, a decline from 2.75c.

Offerings of lapweld pipe in the resale market are interfering to an appreciable extent with the primary market, say producers, who estimate that 100,000 tons are in the hands of oil groups in mid-continent and adjacent fields. This product is now being freely offered at prices well below those quoted by the makers, which is turning business from them.

Tinplate business has been accepted at $6, with stock plate moving at $5.50 to $5.75.

In raw materials, prime Western spelter has sold at 4.25c and consumers look for a record low price of 4c before the upward swing gets under way.

## COKE WORKERS' WAGES

### Reduction Announced by Two Large Companies —Rainey Operations Curtailed

UNIONTOWN, PA., July 2.—A further reduction of 10 per cent in wages affecting all employees was announced this week, immediately effective, by W. J. Rainey, Inc., and the Washington Coal & Coke Co., two of the largest independent operators in the Connellsville bituminous district. No notices have been posted by the other independents in the region but it is considered likely that the majority will put the reduced scales in effect. No further reduction is expected at this time by the H. C. Frick Coke Co., subsidiary of the United States Steel Corporation.

Rainey operations have been reduced to between 30 and 40 per cent on coke. All ovens at Allison and Vanderbilt were blown out this week and 299 ovens were blown out at Revere. Washington Coal & Coke Co., with operations at Dawson, has 140 ovens in blast making foundry coke almost exclusively. The Washington company has landed a northwest coal order requiring delivery of 40 cars daily for shipment by lakes. This is in addition to a railroad order and other contracts held by the company which boosts its operations to between 60 and 70 per cent.

With the reduction in wages announcement was made by both companies of reduced prices, practically to cost, of commodities in their stores and reduced rents for houses.

All ovens of the H. C. Frick Coke Co. remain out of operation. Coal production of the Frick company is between 30 and 40 per cent.

There are insufficient sales in the region, either on coal or coke, to base accurate prices. Some furnace coke has been sold at below $3 to clear unconsigned lots. Coal has dropped to $1.65.

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C. Davis & Co. with offices at 909-912 B. F. Jones Building, Pittsburgh, and a warehouse at West Homestead, Pa., has taken over the business of Davis, McCloy & Co. The latter did a business in pipe for structural and agricultural purposes, including railing, fence, columns and other structural purposes where internal pressure is not required. U. L. Tierney is manager of this division of C. Davis & Co.

# Trade and Office Changes

The National Machinery Sales Co., 28 North Des Plaines Street, Chicago, was recently incorporated to engage in the machine tool business. The officers include, James L. Gough, president and treasurer; James Jay Sheridan, secretary; and George D. Benson assistant secretary. Mr. Gough until a year ago was president of the Federal Machinery Sales Co., Chicago, a machine tool house which he was largely instrumental in founding in 1915, and which became one of the prominent companies of its kind in the Central West. Mr. Gough has been in the machine tool business for more than 25 years, having become identified with it in his early youth. Prior to his connection with the Federal Machinery Sales Co., he had been sales manager the E. L. Essley Machinery Co., and assistant manager the Marshall & Huschart Machinery Co., both Chicago houses. Mr. Sheridan, secretary, is resident attorney for the National Bank of the Republic, Chicago, and is an ex-president of the Hamilton Club, the Republican Club of the city. Although not a machinery man, strictly speaking, he has a wide acquaintance in the trade, having been for five years vice-president of the Federal Machinery Sales Co. Mr. Benson was formerly connected with the Federal Machinery Sales Co. and has been in the machine tool business about five years.

JAMES L. GOUGH

Harry W. Torney, Torney & Co., recently made president of the reorganized Sharon Pressed Steel Co., 66 Broadway, New York, has taken in hand the refinancing of the concern and states that its former financial difficulties have been satisfactorily adjusted. The company is now in a position to handle production and delivery of car and truck frames up to 1500 per day. Manufacture is now in charge of Arthur W. Swan, general manager, who was formerly chief engineer and works manager of the Crucible Steel Co. A recent addition to the plant is the 4000-ton Mesta press. Lack of work in the surrounding district has enabled it to add to its force a corps of picked, all-American labor.

The Brown Instrument Co., Philadelphia, manufacturer of instruments for indicating and recording temperatures, pressure, speeds, operations, and drafts, has opened a branch office in Cleveland, 201 Reliance Bank Building, 1634 Euclid Avenue. This now makes at total of 11 district offices, located in New York, Pittsburgh, Detroit, Cleveland, Chicago, St. Louis, Denver, Los Angeles, San Francisco, and Montreal.

The Hydraulic Hoist Mfg. Co., Detroit, has moved from 954 East Milwaukee Avenue into larger quarters at 5730 Michigan Avenue, Detroit.

The offices of the Schuylkill Iron Works and the John Wood Mfg. Co., of the Alan Wood Iron & Steel Co., Conshohocken, Pa., will be consolidated on July 1, covering the rolling mill department of the organization. The offices will be maintained at the Schuylkill works, with William A. Cooper continuing in the capacity of manager of rolling mills.

The office of W. A. Jackson, purchasing agent, Walworth Mfg. Co., Boston, wrenches, etc., is now located at 88 Pearl Street, fourth floor.

The Standard Pressed Steel Co., Philadelphia, has moved to Jenkintown, Pa.

On June 1 the Chicago sales offices of the New Departure Mfg. Co. were removed from 2721 South Michigan Avenue to the People's Gas Building, 122 South Michigan Avenue.

Roper, Hurrey & Parks, business and government consultants, Munsey Building, Washington, have retained as their general counsel William L. Frierson, former solicitor general of the United States, and have opened a New York office in the Canadian-Pacific Building, Forty-fourth Street and Madison Avenue. The firm comprises Daniel C. Roper, C. B. Hurrey and Franklin C. Parks.

The Clark-Turner Piston Co., Los Angeles, Cal., manufacturer of Deluxe light weight cast-iron pistons, has appointed the Laystall Motor Engineering Works, Ltd., London, England, distributors of Deluxe pistons in Great Britain and Ireland.

The Progressive Mfg. Co., Torrington, Conn., maker of wire products, will close its factory about July 1 for about one week or ten days for annual inventory and repairs.

The Joseph L. Skelton Engineering Co., 242 Water Street, Toledo, has opened a Detroit office at 1156 Penobscot Building, in charge of H. E. Heilman. This company specializes in municipal and general power plant construction. It also acts as representative for the Ames Iron Works, Otsego, N. Y., Houston, Stanwood & Gamble, Cincinnati, the American Steam Pump Co., Battle Creek, Mich., and several other lines.

The Falk Co., Milwaukee, Wis., has changed its name to the Falk Corporation.

The C. H. Wheeler Co., of Philadelphia, manufacturer of condensers, pumps, etc., has opened a new branch office in Boston; at 53 State Street, room 613.

The Ohio Pipe Bending & Machine Co., Cleveland, is now located at 2010-20 Elm Street, corner of Washington.

The Rock Point Sand Co., 635-639 Wabash Building, Pittsburgh, has established a branch office at Youngstown, Ohio, in charge of C. C. Whiteside, general manager. The company produces silica sands of various kinds for the foundry trade.

The Atlantic Welding Works, welding engineers, will change its name to Atlantic Welded Products Co. and will move into its own building at 1725-27 North Howard Street, Philadelphia, both changes to take effect on or about June 15.

The Sturgis Steel Go-Cart Co., Sturgis, Mich., has changed its name to Sturgis Go-Cart Co. and has increased its capitalization from $650,000 to $3,150,000.

The Master Machine Co., Philadelphia, has filed notice of change of name to the Victor Slicing Machine Co., to manufacture special cutting machines and parts.

The Erickson Pattern & Mfg. Co., Beaver Dam, Wis., has changed its corporate style to Beaver Pattern & Mfg. Co. It manufactures wood and metal patterns, templates and other similar supplies for foundries of all kinds.

The Sheldon Co., 41 Park Row, New York, has been made the exclusive agent in New York territory for the sale of the Houston, Stanwood & Gamble Co.'s new plate press for boiler, tank and stack shop use, or for use in plants doing plate or structural work.

The New York offices of the Jeffrey Mfg. Co., Columbus, Ohio, are now located at 30 Church Street, with Harold B. Wood as district manager.

The Acme Motor Truck Co., Cadillac, Mich., has organized in New York the Acme Motor Truck Corporation, a subsidiary, which will act as direct factory branch. Headquarters are at 647 West Fifty-fifth Street, with assistant sales manager C. A. Ward, Jr., in charge.

The Mueller Metals Co., Port Huron, Mich., is appointing sales representatives in all the larger cities of the country. Hunter & Wilkie, 603 Kerr Building, Detroit, will handle the Mueller products, exclusive of rods and tubing, in Detroit and vicinity, and the Steel Sales Corporation, with offices at 129 South Jefferson Street, Chicago, and 404 Book Building, Detroit, will handle rods and tubing in Detroit, and the complete Mueller line in Illinois, northern Indiana and Michigan territory outside Detroit, and also in Iowa, Missouri and Wisconsin. The Mueller company manufactures red-tip brass rods, blue-tip bronze rods, red-tip brass and copper seamless tubing, sand castings and forgings in brass, bronze and aluminum, die castings and screw machined parts.

The Dayton-Dowd Co., manufacturer of centrifugal pumps, Quincy, Ill., has opened a new district office for the sale of pumping machinery in the Pioneer Building, St. Paul, Minn., in charge of the George M. Kenyon Co. The firm consists of George M. Kenyon, president and general manager; Robert D. Lewis, vice-president, and James C. Willson, vice-president, all of whom are engineers of long standing in St. Paul, well acquainted with the power plant, railroad and municipal field.

The Johnson-Peter Co. has opened an Eastern branch office at Warehouse 34, Bush Terminal, Brooklyn, N. Y., in charge of Edward H. Gill, vice-president. A complete stock of boiler tubes will be carried here, as well as at Pittsburgh. The company has specialized in the sale of this commodity entirely until the Eastern branch was opened. However, it will now handle diversified products, including mechanical tubing, pipe, bars, sheets, tin plate, wire and wire products.

The factory of the Root Co., Bristol, Conn, automatic counters, will be closed from July 2 to July 18.

# Machinery Markets and News of the Works

## JUNE POOREST MONTH

### Some Offices Make No Sale During Entire Period

### One Sale of Ten Machines; Another Inquiry for Five Is Pending

June was decidedly the poorest month of the year. In New York there were local sales offices which did not make one sale during the month. In some centers, notably Pittsburgh, new plant construction proceeds at a lively pace, but little interest is manifest in buying the equipment for these new plants.

In the New York district, prospective crane buyers seem in a mood more receptive to give heed to sellers. In the Milwaukee district, there is a certain degree of confidence in future business from railroads and the automotive industries, including the motor truck industry.

Two 10 per cent price reductions are announced in the Middle West: That of the Richards Machine Co., Milwaukee, on drill presses, and that of the United States Electrical Tool Co., Cincinnati, on electric drills.

An eastern Pennsylvania steel company is asking for the following machines for doing work on the New York-New Jersey vehicular tunnel: A 42-in. lathe; two shapers, 16-in. and 32-in.; a 5-ft. radial drill and a 31-in upright drill. The Champion Wrench Co., Chicago, recently purchased about 10 machines.

Neither the Illinois Central nor the Rock Island has taken action on its inquiries.

## New York

NEW YORK, July 5.

The pre-holiday week was as dull in the local machine-tool trade as those which preceded. There is very little inquiry and few orders. Several local sales offices of machine-tool companies did not sell a single machine during June, which was the poorest month of the year for the whole trade.

It is generally conceded that purchasers of cranes are to-day in a slightly more receptive mood than for some time past. A fair volume of inquiries is in the market, but the number of sales reported is small. Among current inquiries, upon which bids are being submitted, is one from the Amoskeag Mfg. Co., Manchester, N. H., calling for a 60-ton overhead traveling crane.

Among recent sales are: Industrial Works, a 20-ton, 50-ft. boom locomotive crane with grab bucket to H. F. Curtis, 1270 Broadway, New York; Pawling & Harnischfeger Co., a 10-ton, 71-ft. span overhead traveling crane to the Chapman Derrick & Wrecking Co., 17 Battery Place, New York; Alfred Box & Co., a 2-ton, electric overhead traveling crane to the Williams Harvey Corporation, Brooklyn, N. Y.

The Telescope Cot Bed Co., 535 East Seventy-ninth Street, New York, manufacturer of metal beds, has awarded contract to F. M. Webster, 229 Baker Avenue, Syracuse, N. Y., for a new one-story plant, 70 x 420 ft., at Granville, N. Y., to cost about $100,000. A power house will also be built.

The Remington-Burnelli Aircraft Co., New York, has been incorporated with a capital of $100,000 by G. C. T. Remington, V. J. Burnelli and J. A. Nugent, care of Nugent & Nugent, 280 Madison Avenue, to manufacture airplanes and parts.

The Verne Mfg. Corporation, New York, has been incorporated with a capital of $100,000 by S. T. Paley, S. S. Rand and E. J. Whitlock, to manufacture electrical specialties. It is represented by H. S. Mansfield, 55 Liberty Street.

The Columbia Valley Paper Co., 44 Howard Street, Albany, N. Y., F. B. Oldham, president, is making inquiries for materials and equipment for the construction of a new paper mill at Mellenville, N. Y. Plans for the factory have been completed.

The Koffee Saver Mfg. Co., New York, has been incorporated with a capital of $100,000 by J. T. Pedersen, M. M. and A. M. Sloss, 18 West Eighteenth Street, to manufacture metal coffee urns and kindred products.

The P. & R. Auto Specialty Mfg. Co., Brooklyn, has been incorporated with a capital of $50,000 by B. and L. Robbins, and G. Portmoy, to manufacture automobile equipment. The company is represented by H. O. Falk, 145 West Forty-fifth Street, New York.

The Dodge Building Corporation, an interest of the Dodge Mfg. Co., 21 Murray Street, New York, manufacturer of transmission machinery, has secured a loan of $800,000 for the erection of a new twelve-story building on West Broadway, extending from Park Place to Murray Street. The company will occupy three floors. Plans are being prepared by Shape, Bready & Peterkin, 220 West Forty-second Street, architects.

The Winner Wire Goods Mfg. Co., New York, 349 East 133rd Street, New York, has been organized under state laws by J. and M. Spiegel, to manufacture wire products.

Russell G. Cory, 50 Church Street, New York, consulting engineer, is placing on the market a four-story plant building at New Haven, Conn., approximating 80,000 sq. ft. of manufacturing area.

The New York & Harlem Railroad Co., 1874 Second Avenue, New York, has filed plans for a one and two-story repair and mechanical shop at 2155 Madison Avenue, 38 x 154 ft., to cost about $45,000. Contract for erection has been let to James Stewart & Co., Inc., 30 Church Ctreet.

A one-story power house will be erected in connection with the new plant of the Hires-Turner Glass Co., Thirtieth and Walnut Streets, Philadelphia, on Tivoli Street, Albany, N. Y., miscellaneous construction contracts for which are being awarded. The entire plant will cost about $100,000.

Durant Motors, Inc., 1764 Broadway, New York, will commence the production of its new popular priced automobiles at its new plant at Long Island City about Aug. 1, and it is planned to develop a capacity of about 25,000 cars per year at these works. W. C. Durant is president.

The National Autoparts Corporation, New York, has been incorporated with a capital of $4,000,000 to manufacture automobile parts. It is represented by Arthur W. Britton, 65 Cedar Street.

The International Cement Corporation, Boston, has arranged for the acquisition of the Knickerbocker Portland Cement Co., 30 East Forty-second Street, New York, with plant at Hudson, N. Y., rated at 1,250,000 bbl. of material per annum. About $3,169,000 will be given for the property.

The New York Central Railroad, Grand Central Terminal, New York, will receive bids up to noon, July 12, for bridge parts, steel and material for track scales and bridge repairs, in accordance with plans and specifications on file at the office of W. C. Bower, general purchasing agent.

The New York Electric Installation Co., 147 West Thirty-fifth Street, New York, has leased the four-story factory, 26 x 100 ft., at 71 Eighth Avenue for 21 years, with aggregate rental of $94,500, for the establishment of a new plant.

The Ashland Contracting Co., Brooklyn, referred to in a recent issue of THE IRON AGE, has arranged for offices at 186 Remsen Street, and from which matters pertaining to its new industrial project at Fulton Street and New York Avenue, Jamaica, L. I., will be handled. The cold storage and refrigerating plant to be erected, in connection with market building, warehouses and light manufacturing plants, will cost about $300,000 with machinery. A power plant will be constructed for central station service. The entire project will cost in excess of $1,250,000. Michael H. Wolpert,

head of Caruci & Wolpert, general contractors, is president of the company; Herman Froeb, treasurer, and A. A. Carucci, secretary.

The Laurant-Kelly Co., East Rutherford, N. J., has been incorporated with a capital of $25,000 by Henry J. Laurant and John J. Kelly, East Rutherford, to manufacture surgical instruments and other precision equipment.

In connection with a new high pressure water system to be installed at Boonton, N. J., bonds for $100,000 for which have been approved, a large pumping plant with high-pressure pumping machinery will be constructed near Sheep Hill. Frederick V. Pitney, 21 South Street, Morristown, N. J., consulting engineer, has been retained to prepare plans and specifications.

The Ajax Battery Co., Buffalo, has been incorporated with a capital of $1,000,000 by O. M. Gallagher, G. N. Culbertson and E. H. Hill, to manufacture electric storage batteries and kindred products. The company is represented by Layton H. Vogel, Ellicott Square.

The Martin Automatic Fishing Reel Co., Mohawk, N. Y., has been incorporated with a capital of $75,000 by C. Maurice, D. Moynihan and A. B. Maury, to manufacture nickeled metal fishing reels and kindred products. J. E. Rafter, Mohawk, represents the company.

The Mayer Coating Machines Co., 205 St. Paul Street, Rochester, N. Y., is about to begin the erection of a factory building and is in the market for material used in construction.

## New England

BOSTON, July 5.

The machine tool market for July has started off fairly well, and, while business continues spotty, it has every indication of exceeding that for June. One local house has under negotiation a sale involving approximately $20,000 worth of new and used equipment for one company, and other prospects, bringing the gross value considerably above that figure, which are expected to close this week. Another dealer is figuring on a fairly large list of new production tools issued by a local concern, while other interests report a number of sales pending on one, two and three machines which are expected to close within the next 15 days. In view of the condition of the machine tool market the first six months of 1921, it is of interest to note that one New York corporation recently mailed bonus checks to outlying sales organizations covering equipment delivered in the quarter ended March 31.

The city of Springfield, Mass., has purchased through the E. S. Stacey Supply Co., one 16-in. x 6 ft. and six 13-in. x 5 ft. South Bend lathes. It is intimated the city of Manchester, N. H., will close on its list of school equipment this month, as will also the city of Worcester, Mass. The Worcester list probably will be placed with local manufacturers, athough there is some doubt as to the 10 lathes involved. Bids have been submitted to Washington for two arbor presses, a motor-driven wet tool grinder and a 2 x 24 flat turret lathe for the Boston Navy Yard. The Lowell Electric Light Co. will need machine shop equipment for its proposed new plant, but no list has been compiled.

A majority of other machines sold the past week were used tools. Sales include a large list of production equipment to the Badger Fire Extinguisher Co., Roxbury, which is reported in the market for die castings. A Cambridge, Mass., manufacturer of fasteners has covered on milling and tapping equipment, and another company in that city on four-spindle high speed drilling machines, while a Providence, R. I., firm bought six-spindle high speed drilling machines.

Local machine tool houses were closed from Friday evening, July 1, until Tuesday morning, July 5.

The Montague Machine Co., Millers Falls, Mass., the past week purchased $600 worth of small tools.

Cleveland interests have issued a second price list on drills and reamers showing a further reduction amounting to approximately 5 per cent on some lines.

Inquiries, largely from leather manufacturers and fabric mills, have appeared in this market for twenty gross and larger lots of files, the demand being more active than for many months.

Most of the machine tools sold June 30 at the public auction of the Iverson Piano Player Co., Worcester, equipment brought remarkably good prices. For instance, a Consolidated Press Co. practically new No. 4 open back power press went at $662.50, compared with a factory price of about $675. Bench precision lathes sold at $90 to $130, mostly the top price. A J. E. Snyder & Son 23-in. upright drill, in good condition, sold for $200; a Blair automatic plain surface grinder, $362.50; a No. 6 Perkins open back geared power press, $250; an almost new Flather 14-in. x 6 ft. screw cutting engine lathe, $312.50; a Waltham bench automatic spur gear cotton machine, $262.50; No. 1 Consolidated open back power press, $162.50; No. 2½ open back power press made by the same concern, $200, and a No. 3 open back Consolidated power press, $300.

The Worcester Electric Light Co., Worcester, Mass., will erect a machine shop and storehouse, 60 x 70 ft., at an estimated cost of $20,000.

The New Britain Machine Co., New Britain, Conn., has secured several Government orders, the most recent of which is for 6-in. sights for naval guns representing more than $100,000. It has been working on reduced schedule.

The Maine Central Railroad Co. is taking bids for a one-story roundhouse and one-story, 50 x 220 ft. repair shop to replace those recently destroyed by fire at Calais, Me. The roundhouse will contain eight pits, each 77 ft.

The Dennison Mfg. Co., Framingham, Mass., paper goods, has purchased 233,000 sq. ft. on Maple Street, Marlboro, Mass., on which it plans to erect a factory. The first unit probably will be two stories which will be enlarged as the business requires.

The Waltham Motor Manufacturers, Inc., capitalized for $3,500,000, has been granted a Massachusetts charter to manufacture motor vehicles and parts. The incorporators are Charles H. Metz and Charles H. Wolf, Waltham, and Matthew C. Dittman, Weston. It will take over the Metz plant, Waltham.

The Fowler Co., Worcester, hardware and hardware specialties, recently incorporated under Massachusetts laws, has taken over the business of Henry A. Fowler, 65 Beacon Street, manufacturer of curtain fixtures which it will enlarge and plans to erect new works. Tempest C. Garbutt, Brookline, is president and treasurer. Charles B. Rugg, son of Chief Justice Arthur P. Rugg of the Massachusetts Supreme Court, and Henry L. Green are interested financially in the company.

The Worcester Automatic Sprinkler Co., Worcester, Mass., recently incorporated, has secured manufacturing quarters at 60 Ellsworth Street. It proposes to have its sprinklers made in Baltimore and assembled in Worcester. George F. Nixon, formerly with Stone & Webster, Boston; Frank P. Bergin, at one time superintendent Globe Automatic Sprinkler Co., Philadelphia; Joseph R. Zink, Baltimore; Frank O'Reilly, who has been connected with the General Fire Extinguisher Co., Providence, and Thomas J. McDermott, formerly with the Rockwood Sprinkler Co., Worcester, are interested in the new project. A permanent organization has not been completed as yet.

H. D. Meadows, 100 School Street, Springfield, Mass., president New England Steel Castings Co., Longmeadow, Mass., is said to be planning for the immediate rebuilding of the plant, recently destroyed by fire with loss of about $100,000, including equipment.

The Positive Mfg. Co., Springfield, has been chartered under State laws to manufacture automobile and street signals and other metal products. John A. Hamberg is president, and A. E. Snow, 36 Irvington Street, treasurer.

The Boston & Albany Railroad Co., F. A. Ryer, purchasing agent, Room 237, South Station, Boston, will receive bids up to noon, July 12, for the following material: Complete turntable center, in accordance with specifications for material of roller bearing center for heavy 85 ft. turntable, together with cross and longitudinal girders, rivets, bolts, etc.; cast steel wheel bearings and caps for turntable wheels, one right and one left; 16 bearings, with bolts, nuts, etc.

The David Brown Co., Lawrence, Mass., manufacturer of shuttles, bobbins and other textile machine equipment, has completed plans for a new two-story and basement building, 40 x 100 ft., estimated to cost about $40,000.

E. T. Davis, 398 Bridge Street, Springfield, will commence the immediate erection of a new two-story automobile service and repair works, 73 x 180 ft., at Chestnut and Taylor streets, estimated to cost about $120,000.

The North Shore Machine Co., Lynn, Mass., has been organized under State laws to manufacture machinery and tools. L. A. Porter is president, and Eugene R. Dennett, Cedar Heights, Mass., is treasurer.

The Peerless Mfg. Co., Providence, R. I., has been incorporated with a capital of $300,000, by Theodore Beauregard, Providence; Leon S. Courcy and John B. Pinault, Attleboro, Mass., to manufacture tools and other metal products.

The Boston Ornamental Iron Works, Boston, has filed notice of organization to manufacture iron and steel specialties. Nathan Cohen, 108 Washington Street, North, heads the company.

## Chicago

CHICAGO, July 5.

The Illinois Central and the Rock Island have not yet taken action on their inquiries and business from industries continues very light. Buying is confined principally to single tools, although occasionally a group of machines is purchased. The Champion Wrench Co., Chicago, recently closed for three automatic milling machines, two drill presses, a riveting hammer, a cutter tool grinder, and three case hardening and tempering furnaces with complete equipment. The Duplex Printing Press Co. is contemplating the purchase of considerable equipment for its plant at Battle Creek, Mich. The price situation remains substantially unchanged, only two reductions having been reported of late. The Richards Machine Co., Milwaukee, has reduced drill presses ten per cent, and the U. S. Electrical Tool Co., Cincinnati, has marked down electric drills a like percentage.

Albert N. Ruttenberg, 105 North Clark Street, Chicago, has begun the preparation of plans for a one-story garage, 94 x 214 ft., for erection on the West Side at a cost of $30,000.

H. Brands, 11343 Edbrooke Avenue, Chicago, has let contract for a one-story machine shop, 25 x 100 ft., 4532 West Madison Street, to cost $5,000.

The Ruel Lumber Co., 7046 Stoney Island Avenue, Chicago, has been granted a permit to build a one-story garage, 50 x 113 ft., to cost $15,000.

R. W. Olmsted, 171 West Jackson Boulevard, Chicago, has let a contract for a one-story garage, 112 x 165 ft., 704-12 South Wabash Avenue, to cost $48,000.

Holton Steelye & Co., real estate, 140 South Dearborn Street, Chicago, have let contract for a one-story factory, 3419-25 Wentworth Avenue, to cost $12,000.

The Atlantic Brass Works, 1335 West Lake Street, Chicago, has been organized to manufacture brass, bronze and other metal products. Herman W. Grossman heads the company.

The Motor Transport Division of the Army has let a contract for a repair shop, 250 x 1000 ft., Ft. Leavenworth, Kan., to cost $500,000.

A hearing on an application for the sale of the Wahle Foundry & Machine Works, Davenport, Iowa, filed by the guardian of LeRoy L. Wahle, part owner, will be heard in the Scott County District Court on July 5. The Western Pump Co., Davenport, is understood to have offered $39,000 for the property, which it is now renting.

A. J. St. Onge, Saskatoon, Can., plans to locate a factory in River Falls, Minn., for the manufacture of metal products, such as ventilators, cistern and house tanks, and cornices. It will be operated under the name of the Metal Roofing & Cornice Mfg. Co.

The Gem City Foundry, Quincy, Ill., has resumed operations after being idle for six months.

The Agrimotor Mfg. Co., Wichita, Kan., plans to erect a two-story factory to cost $100,000.

The Peelle Co., Brooklyn, N. Y., manufacturer of elevator doors, safety appliances, etc., has let contract for a factory, with 27,000 sq. ft. of floor space to be erected at Richmond, Ind. Some time ago the company acquired a controlling interest in the Richmond Safety Gate Co., which will be operated as the Richmond unit and will manufacture safety gates, exit and entrance doors, and fire door hardware. The old plant of the Richmond Safety Gate Co. has been acquired by the Quaker City Machine Co., manufacturer of ventilating machinery.

The Petroleum Motors Corporation, 220 South State Street, Chicago has completed foundations for the initial buildings of its new plant at Rockford, Ill., and will begin work on the superstructure at once. It will be one and two stories, and in three complete units, estimated to cost about $2,000,000 with machinery. The Holm-Page Co., Rockford, has the erection contract. The Arnold Co., 105 North Monroe Street, Chicago, is engineer. R. C. Cole is general manager.

The Marquette Electric Co., 222 West Austin Avenue, Chicago, has been incorporated with a capital of $200,000 by Harold B. Harvey, Harry I. Kirk and Samuel A. Hohman, to manufacture electrical devices and equipment.

The Domestic Electric Appliance Co., 315 South Jefferson Avenue, Peoria, Ill., has been incorporated with a capital of $50,000 by Milton V. Stagg, R. B. Cherry and E. G. Kuecks, to manufacture electrical appliances and equipment.

Fire, June 18, destroyed a portion of the works of the Curtiss Northwest Aeroplane Co., Minneapolis, Minn., with loss reported at about $70,000.

The St. Clair Foundry Co., Belleville, Ill., has been incorporated with a capital of $100,000 by Richard D. and Frank C. Wiechart, Belleville, to manufacture iron and steel and other metal castings.

The American Process Co., 815 Marquette Building, Chicago, has been incorporated with a capital of $50,000 by Clifford J. Thompson, Taylor E. Brown and David E. Peterson, to manufacture filters and filtering equipment.

## Philadelphia

PHILADELPHIA, July 5.

The Bethlehem Steel Co., Bethlehem, Pa., has issued an inquiry for the following machines to be used on work for the New York-New Jersey vehicular tunnel at Jersey City, N. J.: 42-in. lathe, 16-in. shaper, 32-in. shaper, 5-ft. radial drill, 31-in. upright drill.

The J. W. Paxson Co., 1021 North Delaware Avenue, Philadelphia, manufacturer of foundry equipment and supplies, has filed plans for two shop buildings at Algon Avenue and Luzerne Street, to cost about $60,000, totaling 118 x 118 ft.

The Smith & Furbush Machine Co., Hancock and Somerset streets, Philadelphia, manufacturer of textile machinery, has awarded contract to Stewart Brothers, 2526 North Orkney Street, for extensions and improvements in its plant.

The Van Dusen & Stokes Co., 1123 Chestnut Street, Philadelphia, manufacturing jeweler, has leased space in the building at 2224 Chestnut Street, to be equipped with precision and other machinery for general manufacture.

The William Cramp & Sons Ship & Engine Building Co., Richmond and Norris streets, Philadelphia, is planning for the early erection of a new one-story automobile service and machine repair works for company trucks and automobiles at Wildey and Fletcher streets, estimated to cost about $32,000.

Fire, June 25, destroyed the automobile service and repair works of Richard J. Hill, 340 East Somerset Street, Philadelphia, with loss reported at about $100,000.

The New York Shipbuilding Corporation, Camden, N. J., has secured a contract for the construction of a 10,000-ton fuel ship for the Japanese Navy, and will commence work on the vessel at an early date.

C. E. Abel, Philadelphia Housing Corporation, Commonwealth Building, Philadelphia, has completed plans for the erection of a new one and two-story automobile service and repair works, 150 x 250 ft., at Fifty-sixth and Walnut streets, to cost about $100,000.

A new power plant will be built by the board of directors, St. James Mercy Hospital, Chester, Pa., in connection with the erection of a new main building.

Machine and mechanical equipment will be installed in the new vocational school to be erected by the Lower Paxton Township School Board at Linglestown, Pa., estimated to cost about $55,000. Frank G. Fahnestock, Jr., Patriot Building, Harrisburg, Pa., architect, is in charge.

Robert M. Hallowell, Inc., Ambler, Pa., has been incorporated with a capital of $100,000 by Robert M. Hallowell and Jefferson H. Thompson, Ambler, and George R. Oglesby, North Wales, Pa., to manufacture agricultural implements.

The Schmick Gear & Screw Co., Williamsport, Pa., care of F. Arthur Rianhard, Masonic Temple Building, architect, has awarded a contract to J. V. Bennett & Co., Williamsport, for a new one-story plant, 40 x 100 ft., at Edwin and Campbell streets.

The Phil-King Sanitary Cooler Co., Pottstown, Pa., has been incorporated with a capital of $100,000 by Jacob E. and J. Roy Kinckiner and Frank A. Phillippi, Pottstown, to manufacture water coolers, filters and other sanitary equipment.

The Lane Signal Accessories Co., Sayre, Pa., has been incorporated with a capital of $500,000 by William H. Lane, Harry S. Fish and Raymond L. Gebhardt, Sayre, to manufacture signal devices and other electrical equipment.

## Detroit

DETROIT, July 5.

The Hinkley Motor Corporation, West Fort and Third streets, Detroit, is taking bids for the erection of its new one and two-story plant on Cicotte Avenue, Ecorse, Mich., 250 x 340 ft., to cost in excess of $200,000. Albert Kahn, 1000 Marquette Building is architect; H. M. Butzel is secretary.

The Fredericksen Co., Saginaw, Mich., has been incorporated with a capital of $100,000 by Niels J. Fredericksen,

5740 Lorain Avenue, Detroit; Alexander M. Lemke and Otto Schupp, Saginaw, to manufacture brass, bronze, aluminum and other metal castings.

The Street Railway Department, Detroit, Murphy Building, is completing plans for its new one-story car construction and repair shop, 260 x 370 ft., at St. Jean and Shoemaker streets, and will call for bids at an early date. William O. Markham, 312 Marquette Building, is consulting engineer. Ross Schram is secretary.

The Acme Boiler Works, Inc., Detroit, has been incorporated with a capital of $25,000 by N. G. and Charles L. Simmons, 1405 Nineteenth Street; and Samuel A. Reigel, Highland Park, Mich., to manufacture boilers, tanks, and other sheet and plate products.

The Auto Safety Signal Co., Detroit, has been organized by Joseph Miller and Henry A. Schoenberg, 5043 Allendale Avenue, to manufacture safety signals, lamps, and kindred products.

David Buick, Flint, Mich., founder of the original Buick Motor Co., and associates, have acquired control of the Lorraine Motors Corporation, Grand Rapids, Mich., and will use the plant for the manufacture of a popular-priced automobile. A large portion of operations will be devoted to assembling, and certain parts of the plant will be remodeled. It is understood that the capacity of the local works will be increased. Mr. Buick will be head of the new organization.

The Wyandotte More-Power Truck Co., Wyandotte, Mich., has been incorporated with a capital of $125,000 by Frank Armstrong, 119 State Street, Detroit; William Anderson and W. Allard, Grosse Pointe Village, Mich., to manufacture motor-driven trucks and parts.

## Pittsburgh

PITTSBURGH, July 5.

The machine tool situation is disappointing. Plant construction and extensions have not ceased, but when it comes to buying equipment there is a marked tendency to wait. The Crane Co., Chicago, which is putting up a warehouse in this city, for which at least three cranes will be wanted, is going ahead with the building but is not interested yet in placing the cranes. The machine tool business has not been so small in years as it is at present and crane builders are finding it difficult to put orders on their books. The International Nickel Co. has placed an order for two more 15-ton Shaw cranes, making 10 in all for its new plant at Huntington, W. Va. The cranes for the Kelley Island Lime & Transport Co. for its new crusher plant at Marblehead, Ohio, and the crane inquired for sometime ago by the Greenville Steel Car Co., Greenville, Pa., are yet to be placed. Crane prices steadily are working downward and while current quotations are about 10c. per lb. below the average of the war period they still are about 5c. per lb. above pre-war prices. Union City, Pa., opens bids July 6 for an oil-burning pumping engine and air-compressor for deep well pumping, and the West Penn Power Co. is expected to be in the market soon for some power equipment in connection with the addition to its Springdale, Pa., plant. The city of Youngstown, Ohio, recently bought a DeLaval steam turbine-driven waterworks type centrifugal pumping unit, with condenser and auxiliaries. The gear drives for the new plant of the International Nickel Co., Huntington, W. Va., have not yet been placed.

In connection with the extensions to be erected at the plant of the Oliver Iron & Steel Co., Tenth Street, Pittsburgh, estimated to cost about $185,000, and addition to the bolt shop will be constructed, 40 x 80 ft.

The Phelps Can Co., Lawrence Street, Baltimore, is arranging for the early operation of its new plant at Clarksburg, W. Va. It will produce about 450,000 cans per day, and will give employment to over 200 operatives. G. S. Tibbits is manager.

The Standard Sanitary Mfg. Co., Pittsburgh, manufacturer of sanitary ware, has arranged for a stock issue of $1,500,000, the proceeds to be used for general expansion, including plant additions and improvements.

The Parsons Pulp & Lumber Co., Finance Building, Philadelphia, is reported to be planning for the erection of an addition to its pulp mill in the vicinity of Horton, W. Va., to double the present capacity.

The Romisch Mfg. Co., Morgantown, W. Va., has completed plans for a new two-story machine shop, 35 x 150 ft., on Beechurst Avenue, estimated to cost about $25,000. A. Romisch is head.

The Wheeling Bronze Casting Co., Wheeling, W. Va., has been reorganized with a capital of $100,000 to manufacture brass, bronze and other metal castings. It is headed by William J. Braddock, Wheeling, and J. W. Millard, Sr. and Jr., Martins Ferry, Ohio.

The West Virginia & Maryland Power Co., Kingwood, W. Va., has been organized by Col. Carleton C. Pierce, Kingwood, and associates, to carry out a large power project in this section, including the erection of a new electric generating plant and transmission system.

The Ellwood Foundry & Machine Shop recently reorganized with a capitalization of $75,000 now is known as the Ellwood Foundry & Machine Co., Ellwood City, Pa. C. W. Carbeau, formerly with the American Steel Co., Ellwood City, is treasurer. The company contemplates extensions to the pattern and machine shops, necessitating the purchase of additional equipment.

## Baltimore

BALTIMORE, July 5.

The Seaboard Steel & Iron Corporation, 905 Lake Drive, Baltimore, has plans under way for the erection of a new one-story building at Paca and West streets, to cost about $25,000. William F. Holl is head.

The Holdtite Rubber Co., 919 Baltimore Street, Baltimore, recently organized to manufacture rubber specialties, has awarded a contract to R. B. Mason, 308 West Madison Street, for the superstructure of its new plant at Warner and Ostend streets, one-story, 50 x 125 ft., estimated to cost close to $30,000. Charles W. Lenden is in charge.

The quartermaster general, United States Army, Washington, is taking bids up to 3 p. m., July 25, for the purchase of two Government plants at Montreal, Que., comprising the works of the Peter Lyall Construction Co., with 24 buildings, totaling 260,350 sq. ft., and the plant of Munition & Machinery, Ltd., at Notre Dame, Seventeenth and Eighteenth streets, with one main three-story building, aggregating 45,000 sq. ft.

The Athens Railway & Electric Co., Athens, Ga., has arranged for a bond issue of $179,000, the proceeds to be used for general operations, improvements, etc.

The E. R. Parker Motor Co., Macon, Ga., is considering the rebuilding of its works, recently destroyed by fire with loss estimated at about $125,000.

Shapers, molders, sanders, jointers, band saws, rip saws and other machine equipment will be installed in the new plant to be erected by the Elkins Furniture Co., Elkins, N. C., to replace its works recently destroyed by fire with loss of about $100,000. Most of the machinery will be operated with individual motor drive. A list of equipment has been prepared. R. L. Hubbard is secretary and treasurer.

The War Department, Washington, will commence the immediate construction of a new automobile service and repair building at Columbia, S. C., for Federal motor trucks and cars. It will approximate about 3400 sq. ft. in floor area.

Plans for the construction of a new electric power plant for mill service are being prepared by the Thomaston Cotton Mills, Thomaston, Ga. R. E. Hightower is president.

The Albemarle Oil & Gas Co., Charlottesville, Va., is planning for the installation of new electrically operated pumping machinery, including self-measuring oil and gas pumps. A local building has been acquired for a new plant. J. B. Belk is manager.

## Cleveland

CLEVELAND, July 5.

Sales during the week were in small volume and largely in single machines. The demand is coming mostly from small companies that need one or two tools to manufacture a new product. Some new inquiries for fair sized lots have come out, but as a rule these do not lead to the placing of orders, purchases being delayed until conditions improve. One new inquiry is for 32 machines. A Cleveland machine tool manufacturer has two inquiries for 10 or 12 gear hobbing machines for the automotive industries, one coming from Detroit and the other from Pennsylvania. Several inquiries are pending from Ohio schools for equipment for manual training departments, but in some cases the placing of the orders has been postponed. Sales by local dealers during June were generally lighter than in May, although one dealer reports more business in June than during the previous month. The State of Ohio has purchased several machines for the reformatory at Mansfield.

Price reductions of around 10 per cent have been announced by the U. S. Electric Tool Co., Cincinnati, on its line of tools. The Diamond Machine Co., Providence, R. I.,

has also made reductions on some of its types of grinding machines.

The Gaskill Industrial Furnace & Foundry Co., Cleveland, has been organized to manufacture the Gaskill oil-fired melting furnaces, the company having taken over the business of the Gaskill Furnace Co., Chicago, and moved it to Cleveland. It has been incorporated with a capital stock of $50,000 in preferred stock and 1000 shares of no par common stock and will make stationary, tilting and oscillating types of furnaces. Offices have been established at 402 Engineers Building. The officers have not yet been elected. James A. Gaskill will be the general manager. This design of furnace was described in THE IRON AGE, March 18, 1920.

The Riverside Bridge Works has placed a contract for an extension to its fabricating plant at Martins Ferry, Ohio, that will about double its capacity. The main building and machine shop will be extended and new blacksmith and pattern shops will be erected.

The Master Tool Co., 203 St. Clair Avenue, Cleveland, has been organized to succeed the Federal Engineering & Mfg. Co., and will devote its efforts largely to reclaiming old pneumatic tools. James Nightingale is president; C. F. Overly, vice-president and general manager, and William Eckert, secretary and treasurer.

The E. G. Atkins Co., Mansfield, Ohio, manufacturer of carburetors has increased its capital stock from 1300 to 2000 shares of no par value stock and is planning to increase its output.

The City Ice & Fuel Co., Cleveland, is planning the erection of a new ice manufacturing plant in Lakewood, a suburb. It is expected that the plant will involve an expenditure of $50,000.

A new one-story power house will be constructed by the Orr Felt & Blanket Co., Piqua, Ohio, for general mill service. Pretzinger & Susselman, 1155 Reibold Building, Dayton, Ohio, is architect.

The Lima Sheet Metal Products Co., Lima, Ohio, has awarded a contract to the Lima Construction Co., 215 South Central Avenue, for the erection of a one-story addition to its plant on Charles Street, 120 x 234 ft., estimated to cost about $50,000.

A power plant will be built by the Farmers Sugar Co., Defiance, Ohio, in connection with the erection of its one, two and three-story mill, estimated to cost about $1,000,000 with machinery. The power house will be of steam-operated type. A. H. Smith, 215 Nasby Building, Toledo, Ohio, is architect and engineer. Charles H. Allen is president.

## Cincinnati

CINCINNATI, July 5.

Several of the larger manufacturers are contemplating closing down for a short period, as they have sufficient stock to take care of the present demand. While the market generally is dull, a few bright spots appear occasionally. One of these was the booking by a local concern recently of eight milling machines for a Japanese naval arsenal and another manufacturer secured several radial drills from the same source. Local manufacturers report the receipt of reinstatements on a number of machines destined for the automotive industry and the reinstatement of an order for a $10,000 machine with the prospects good for another order for a machine of the same type. Some of the above orders were canceled last fall. Dealers report the market for used machinery as very quiet although occasionally inquiries are received for several tools.

The Norton Iron Works, Ashland, Ky., recently purchased two-10-ton traveling cranes from the Bedford Foundry & Machine Co.

The Boss Service Co., Cincinnati, with a capitalization of $100,000 has been organized for the purpose of conducting a garage and service station at Twelfth and Sycamore streets. William Boss is president of the company.

The National Recording Pump Co., Dayton, Ohio, has been incorporated with a capitalization of $50,000 to manufacture a gasoline pump and oil filler. It has taken over the patents formerly held by the Protecto Pump Co. and is now in operation at Second and Dale streets. William T. Hatmaker is president.

An addition to the plant of the Herring-Hall & Marvin Safe Co., Hamilton, Ohio, has recently been completed at a cost of $75,000. It will be used for assembling purposes and practically all of the equipment has been purchased.

The Quick Change Chuck Mfg. Co., Arcanum, Ohio, manufacturer of the Quickchange chuck, is about to enter the aeroplane field and has signed a contract with the American Aeroplane Co. to manufacture and assemble its planes. Three of the machines are now in process. The company will devote its facilities to the manufacture of plane parts, tools, dies and special machinery. It is their intention in the near future to establish a landing field and erect hangars to house the machines. Fred Cline is president.

## Milwaukee

MILWAUKEE, July 5.

A loosening tendency in the demand for machine tools is expected to develop with the passing of mid-year. While the local trade does not expect to see any large volume, nevertheless confidence is expressed in the possibilities of business from railroads, as well as from the automotive industries, which are getting back into a fair production schedule on passenger cars. The motor truck industry also is improving. Agricultural implements, including tractors, remain in a dull condition, with little hope of a revival before fall. Current transactions are light, and in general it may be said that June sales of tools were the smallest of any month this year.

The Bell Mfg. Co., Beaver Dam, Wis., manufacturer of barn equipment and other metal specialties for dairy and farm, has acquired the real estate, machinery and tools of the Helbing-Knaup Mfg. Co. in the same city, which recently went into the hands of a receiver. The Bell company intends to make alterations and rearrange the equipment, as well as to add some new machinery, and will then occupy the former Helbing-Knaup plant.

The Wisconsin Top Co., Inc., Racine, Wis., has been organized with an authorized capital stock of $300,000 to succeed to the business of the McAvoy Mfg. Co., Racine, manufacturer of closed bodies for passenger cars, winter tops, curtains, truck cabs, etc. The ownership and management remain unchanged. The incorporators are C. V. McAvoy, L. M. Johnston and O. M. Kalmeliano.

The Truckmixer Co., Milwaukee, has been incorporated to manufacture concrete mixers and allied machinery, as a development of the Stamp Machine Co., Milwaukee, The capital stock consists of $40,000 of preferred and 250 shares of common stock having no par value. For the present manufacturing operations will be carried on under contract with existing machine shops, but later it is intended to erect new works in Milwaukee. The incorporators are Edward Jacobi, Lorraine Stamp and H. O. Stamp, 3732 Walnut Street, Milwaukee.

The Hartenberger Double Wall Silo Co., Sheboygan, Wis., is completing plans for enlargement of its factory. The capital stock has been increased from $50,000 to $125,000 to finance the work and future increase in production.

The Moloch Co., Kaukauna, Wis., a consolidation of the Kaukauna Machine Works Co. and the Moloch Automatic Stoker Co., Chicago, on July 1 commenced operations in its new foundry and machine shop, erected and equipped at a cost of approximately $200,000. The foundry is 100 x 150 ft., and the machine shop of like dimensions. The principal product is mechanical stokers for boiler plants and the manufacture of Mayer power hammers also will be continued, on an increased scale. The Moloch Co. has unfilled orders which will keep it operating at capacity more than three months.

The village of Webster, Wis., has let contracts for the erection of a new high school, with manual arts department, costing about $90,000 complete. Shop equipment will be purchased within a short time. Paul C. Meyers is clerk of the board of education.

The Lighting Products Corporation, Wauwatosa, Wis., incorporated recently to manufacture electric lighting fixtures, devices, appliances, etc., has made a change of title to Light Products Co., and changed the capitalization to $25,000. Clarence Ullman, J. J. Meyer and W. F. Zack, all of Wauwatosa, are the principals in the enterprise.

Henry Fiege, Bayfield, Wis., who has succeeded Fiege Brothers as owner and manager of the Fiege Garage & Machine Co., will add a full story to the present building and erect a one-story brick addition, 30 x 100 ft., to be equipped as a machine and repair shop. Construction will begin about July 15.

The Fox Ice Co., Racine, Wis., has purchased a site, 125 x 200 ft., at Sixth and Racine streets and will erect an artificial ice producing plant and warehouse, 80 x 198 ft. The contract for furnishing and installing an ice machine with a capacity of 120 tons a day, and with electric motor drive, has been let to the Vilter Mfg. Co., Milwaukee.

The Wisconsin Textile Mfg. Co., Two Rivers, Wis., manufacturer of wood and metal supplies and specialties for the textile mill industry, will spend about $30,000 in the erection of an addition, 60 x 180 ft., which will include a steam generating plant. Gus. C. Kirst is president.

The Six-Wheel Truck Co. of Wisconsin, organized at

Fox Lake, Wis., with a capital stock of $50,000, to manufacture a new design of motor truck having six wheels, is negotiating for a permanent location of works and offices in Portage, Wis. H. E. Plumner, Portage, Wis., is handling negotiations.

The Great Northern Pail Co., Gillett, Wis., will erect a two-story addition, 36 x 93 ft., of brick and concrete, to accommodate a new department being established for the manufacture of veneer shipping cases in addition to the present line of candy pails and similar stade containers. Veneer cutting, electric motor and other equipment is now being purchased.

The A. H. Peterson Mfg. Co., 1614 Fratney Street, Milwaukee, established four years ago for the production of special tools and dies, is discontinuing this line to concentrate upon the manufacture of portable electric drills and other automotive appliances and devices. The entire plant is being re-arranged and considerable new machinery and equipment is being purchased. Some of the present equipment will be exchanged or rebuilt. The company is continuing production on a partial basis for 60 days while the works are changed over for the new line. A force of 200 will them be employed. Arno H. Peterson is president-treasurer and general manager.

## The Central South

ST. LOUIS, July 2.

The Duplex Tire & Rubber Co., 322 Frisco Building, Joplin, Mo., will take bids at an early date for its proposed new three-story plant, 100 x 300 ft., and estimated to cost about $175,000 with machinery. R. W. Crissey is manager.

The Tennessee Charcoal Iron Co., Collinwood, Tenn., is planning for the installation of a new ice-manufacturing and refrigerating plant at its local properties.

Crushing, grinding and other mechanical equipment will be installed at the proposed new line manufacturing plant to be constructed by the Robinson Lime Co., Anderson, Tenn., recently organized with a capital of $250,000. The plant will have an initial capacity of about 50 tons per day. A. J. Robinson is president; and M. H. Bates, treasurer.

The Common Council, Independence, Mo., has approved a bond issue of $35,000 for the installation of a municipal electric power plant. Plans will be prepared at once.

Fire, June 26, destroyed the plant of the Curtis-Bentley Woodworking Co., Oklahoma City, Okla., comprising a three-story brick structure, with power house. The loss is estimated at about $500,000, including machinery. It is planned to rebuild.

The Porter-Holtkamp Motor Corporation, Richmond Heights, Mo., has plans under way for a new two-story machine and service works, 40 x 60 ft., on Sunset Avenue. George C. Porter is president.

The Brown-Harrison Welding Co., 1500 East Sixth Street, Little Rock, Ark., will install new welding equipment.

The Willis-Smiley Production & Refining Co., Springfield, Mo., recently organized with a capital of $250,000, will operate a local oil refinery. William E. Willis is president and general manager.

The Brookhaven Lumber & Mfg. Co., Hattiesburg, Miss., is planning to rebuild its plant, recently destroyed by fire. It will include planing mill, 80 x 120 ft., roughing department, 100 x 200 ft., dressing department, 100 x 200 ft., and other structures. Equipment will be aranged for individual motor drive. The new plant is estimated to cost in excess of $175,000. W. J. Dreyfus is manager.

## The Gulf States

BIRMINGHAM, July 2.

The Alabama Power Co., Birmingham, has been granted permission to build its proposed hydroelectric generating plant at Duncan's Riffle on the Coosa River, near Verbena, estimated to cost about $7,000,000. It will have an ultimate generating capacity of 120,000-hp., with initial installation to total 60,000-hp. Work will begin at once and it is said that 24 months will be required to complete the project. About 6 miles of railroad line will be constructed to reach the site. Thomas W. Martin is president.

Freight handling and conveying machinery will be installed on the new wharf and dock to be constructed by the City Council, Orange, Tex. Bonds for $250,000 for the construction have been voted.

F. W. Crane, Austin, Tex., manufacturer of automobile tops, has plans under way for the erection of an addition to its plant.

The F. Streigler Mfg. Co., Fort McKavett, Tex., has been incorporated with a capital of $100,000 by Fritz Streigler, Fort McKavett; M. Whitely and A. O. Streigler, Eden, Tex., to manufacture automatic valves and kindred mechanical equipment.

The Department of Public Utilities, St. Petersburg, Fla., has plans under way for the installation of a new electric generating unit and other equipment at the municipal lighting plant, to increase the capacity of 7000 kw. R. E. Ludwig is director of the department.

Fire, June 22, destroyed the plant of the Henderson Cotton Oil Co., Shreveport, La., with loss estimated at about $300,000, including machinery. It will be rebuilt.

The Cobb Motor Co., Gadsden, Ala., will install a complete mechanical and machine department on the second floor of its building, for construction and repair work. J. J. Cobb is head.

A. A. Miller, Chattanooga, Tenn., is planning for the erection of an addition to the former municipal light and power plant at Fort Payne, Ala., recently acquired. New machinery will be installed and the capacity increased.

The United States Gypsum Co., 205 West Monroe Street, Chicago, is perfecting plans for the construction of its proposed new manufacturing plant in the vicinity of Sweetwater, Tex., estimated to cost close to $1,000,000, including machinery.

Oil-loading and bunkering machinery, and kindred mechanical equipment will be installed on the new local dock to be erected at Morgan's Point, near Houston, Tex., by the Humble Oil & Refining Co., Houston. It will be 20 x 100 ft.

## California

LOS ANGELES, June 28.

The Leach-Biltwell Motor Co., 4800 Santa Fe Avenue, Los Angeles, manufacturer of automobiles and parts, has plans under way for extensions and improvements to cost about $25,000. New machinery will be installed, including foundry apparatus.

The American Auto Signal Co., Inc., Los Angeles, has been incorporated with a capital of $200,000 by E. W. McKinley, Arthur Dietz and W. E. Coffman, 5909 South San Pedro Street, to manufacture automobile signals and devices, and other kindred products.

The Republic Steel Package Co., 7930 Jones Road, Cleveland, has acquired property at Los Angeles for a new plant to handle Pacific Coast trade. The initial unit will be one-story, 60 x 300 ft., and will give employment to about 100. It is expected to break ground at an early date. S. B. Merry is treasurer.

The Clark-Turner Piston Co., Los Angeles, has been incorporated with a capital of $100,000 by Edward W. Clark, S. S. Turner and Fred C. Calloway, to manufacture pistons, piston rings and other motor equipment. It is now operating a plant on South Los Angeles Street, and has general expansion plans under way, including the erection of new buildings on South Utah Street.

The Southern California Edison Co., Los Angeles, is perfecting plans for the initial work in connection with the erection of a number of hydroelectric power plants on the Colorado River. The entire project will require a number of years to complete, and will include at least five large generating stations, with total cost in excess of $100,000,000.

### Plans of New Companies

The Cook & Willoughby Co., 4465 Second Boulevard at Prentis, Detroit, is a manufacturers' agent and contro'e for the State of Michigan the French Houdaille shock absorbers. It is open for one or two more high grade accounts.

The Multiple Storage Battery Corporation, 350 Madison Avenue, New York, recently incorporated with an authorized capital of $1,000,000, has acquired the business of the Multiple Storage Battery Co., and is building a large addition to its plant at Jamaica, Long Island. The work is in the hands of Consulting Engineer Harvey E. Mole, 55 Liberty Street, and the building contract is being carried out by John Lowry, Jr., 171 Madison Avenue, New York. Herbert G. Clopper, formerly of the New Jersey Zinc Co., and more recently vice-president of the Eagle-Picher Lead Co., has been elected president and treasurer. Norman D. Sturges remains as vice-president and general manager and Jasper Bayne as secretary. The board of directors has been increased to include Howard Bayne and L. N. DeVausney.

Manufacturers' Japanning & Enameling Co., 548-50-52 Rising Sun Avenue, Philadelphia, recently incorporated, does not expect to build at the present time and is not in the market for equipment. It plans to conduct the business along the lines of its predecessor, G. W. Parvis, Jr., who assumes the presidency of the new corporation.

# Current Metal Prices

**On Small Lots, Delivered from Merchants' Stocks, New York City**

The quotations given below are for small lots, as sold from stores in New York City by merchants carrying stocks.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipment in carload lots from mills, these prices are given for their convenience.

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Metal Markets."

### Iron and Soft Steel Bars and Shapes

| | Per Lb. |
|---|---|
| Bars: | |
| Refined bars, base price | 3.13c. |
| Swedish bars, base price | 12.00c. |
| Soft steel bars, base price | 3.13c. |
| Hoops, base price | 4.15c. to 4.18c. |
| Bands, base price | 3.78c. |
| Beams and channels, angles and tees 3 in. x ¼ in. and larger, base | 3.23c. |
| Channels, angles and tees under 3 in. x ¼ in., base | 3.23c. |

### Merchant Steel

| | Per Lb. |
|---|---|
| Tire, 1½ x ½ in. and larger | 3.13c. |
| (Smooth finish, 1 to 2½ x ¼ in. and larger) | 3.33c. |
| Toe calk, ½ x ⅜ in. and larger | 3.75c. |
| Cold-rolled strip, soft and quarter hard | 10.00c. to 10.50c. |
| Open-hearth spring steel | 4.50c. to 8.00c. |
| Shafting and Screw Stock: | |
| Rounds | 4.38c. to 4.63c. |
| Squares, flats and hex | 4.98c. to 5.13c. |
| Standard cast steel, base price | 14.00c. |
| Extra cast steel | 17.00c. |
| Special cast steel | 22.00c. |

### Tank Plates—Steel

| | |
|---|---|
| ¼ in. and heavier | 3.23c. |

### Sheets

*Blue Annealed*

| | Per Lb. |
|---|---|
| No. 10 | 3.88c. |
| No. 12 | 3.93c. |
| No. 14 | 3.98c. |
| No. 16 | 4.09c. |

*Box Annealed—Black*

| | Soft Steel C.R., One Pass Per Lb. | Blued Stove Pipe Sheet Per Lb. |
|---|---|---|
| Nos. 18 to 20 | 4.55c. to 4.95c. | ..... |
| Nos. 22 and 24 | 4.60c. to 5.00c. | 5.60c. |
| No. 26 | 4.65c. to 5.05c. | 5.65c. |
| No. 28 | 4.75c. to 5.15c. | 5.75c. |
| No. 30 | 5.00c. to 5.40c. | ..... |

No. 28, 36 in. wide, 10c. higher.

*Galvanized*

| | Per Lb. |
|---|---|
| No. 14 | 4.50c. to 4.75c. |
| No. 16 | 4.75c. to 5.00c. |
| Nos. 18 and 20 | 4.90c. to 5.15c. |
| Nos. 22 and 24 | 5.05c. to 5.30c. |
| No. 26 | 5.20c. to 5.45c. |
| No. 27 | 5.35c. to 5.60c. |
| No. 28 | 5.50c. to 5.75c. |
| No. 30 | 6.00c. to 6.25c. |

No. 28, 36 in. wide, 20c. higher.

### Welded Pipe

| *Standard Steel* | Blk. | Galv. | *Wrought Iron* | Blk. | Galv. |
|---|---|---|---|---|---|
| ½ in. Butt... | —46 | —30 | ¾ in Butt.... | —18 | List |
| ¾ in. Butt... | —52 | —37 | 1-1½ in. Butt. | —20 | — 2 |
| 1-3 in. Butt.. | —54 | —40 | 2 in. Lap .... | —14 | + 3 |
| 3½-6 in. Lap. | —49 | —35 | 2½-6 in Lap.. | —18 | — 2 |
| 7-12 in. Lap.. | —40 | —24 | 7-12 in. Lap.. | — 7 | +10 |

### Steel Wire

| BASED PRICE* ON No. 9 GAGE AND COARSER | Per Lb. |
|---|---|
| Bright basic | 4.50c. |
| Annealed soft | 4.50c. |
| Galvanized annealed | 5.25c. |
| Coppered basic | 5.00c. |
| Tinned soft Bessemer | 6.50c. |

*Regular extras for lighter gages.

### Brass Sheet, Rod, Tube and Wire

BASE PRICE

| | |
|---|---|
| High brass sheet | 16 c. to 19¼c. |
| High brass wire | 17¼c. to 21¾c. |
| Brass rod | 15 c. to 20¾c. |
| Brass tube, brazed | 29½c. to 31½c. |
| Brass tube seamless | 19½c. to 20½c. |
| Copper tube, seamless | 22½c. to 23¼c. |

### Copper Sheets

Sheet copper, hot rolled, 24 oz., 22c. to 24c. per lb. base.

Cold rolled, 14 oz. and heavier, 2c. per lb. advance over hot rolled.

### Tin Plates

| Bright Tin | | Coke—14x20 | | |
|---|---|---|---|---|
| | | | Primes | Wasters |
| Grade "AAA" Charcoal 14x20 | Grade "A" Charcoal 14x20 | 80 lb. | $7.30 | $7.05 |
| | | 90 lb. | 7.40 | 7.15 |
| | | 100 lb. | 7.50 | 7.25 |
| IC.. $11.10 | $10.00 | IC... | 7.70 | 7.45 |
| IX.. 12.30 | 11.25 | IX... | 8.60 | 8.35 |
| IXX.. 14.10 | 12.75 | IXX... | 9.60 | 9.35 |
| IXXX.. 16.10 | 14.75 | IXXX... | 11.00 | 10.75 |
| IXXXX.. 17.70 | 16.50 | IXXXX... | 12.00 | 11.75 |

### Terne Plates

8-lb. Coating 14 x 20

| | |
|---|---|
| 100 lb. | $8.00 |
| IC | 8.25 |
| IX | 8.50 |
| Fire door stock | 11.50 |

### Tin

| | |
|---|---|
| Straits pig | 32c. |
| Bar | 38c. to 40c. |

### Copper

| | |
|---|---|
| Lake ingot | 16c. |
| Electrolytic | 16c. |
| Casting | 16c. |

### Spelter and Sheet Zinc

| | |
|---|---|
| Western spelter | 6¼c. to 6½c. |
| Sheet zinc, No. 9 base, casks | 11½c. open 12c. |

### Lead and Solder*

| | |
|---|---|
| American pig lead | 5½c. |
| Bar lead | 6¼c. to 6¾c. |
| Solder, ½ and ½ guaranteed | 24¼c. |
| No. 1 solder | 21½c. |
| Refined solder | 18½c. |

*Prices of solder indicated by private brand vary according to composition.

### Babbitt Metal

| | |
|---|---|
| Best grade, per lb | 80c. |
| Commercial grade, per lb | 40c. |
| Grade D, per lb | 35c. |

### Antimony

| | |
|---|---|
| Asiatic | 6½c. to 7c. |

### Aluminum

| | |
|---|---|
| No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb | 30c. to 33c. |

### Old Metals

The market continues quiet and transactions are scarce. Dealers' buying prices are nominally as follows:

| | Cents Per Lb. |
|---|---|
| Copper, heavy and crucible | 10.00 |
| Copper, heavy and wire | 9.25 |
| Copper, light and bottoms | 8.00 |
| Brass, heavy | 5.00 |
| Brass, light | 4.00 |
| Heavy machine composition | 8.50 |
| No. 1 yellow brass turnings | 4.25 |
| No. 1 red brass or composition turnings | 6.75 |
| Lead, heavy | 3.50 |
| Lead, tea | 2.25 |
| Zinc | 2.50 |